

# FLIGHT

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AIRCRAFT  
ENGINEER  
&  
AIRSHIPS

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## Flight

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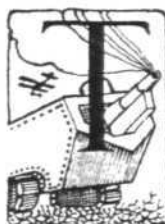
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## EDITORIAL COMMENT.



### Inter- national Aviation

THE conference of the International Commission for Air Navigation which has just concluded, appears to have been surrounded by a certain amount of "secrecy," as is the case nowadays with almost everything pertaining to flying. Whether, like in practically all other cases of secrecy, this was the outcome of a desire to conceal the fact that there was nothing to hide, we cannot say, but from what little has been permitted to become known, it does not seem likely that anything startling has been achieved. The "keep to the right" rule of the sea, which has been in use for several years, was agreed upon and accepted for general adoption, but the much more serious and difficult problem of altitude does not seem to have been touched upon.

It was agreed to accept women pilots for "B" licences, but as the main operating companies are not likely to employ women pilots, we fail to see that this decision has helped international civil aviation in any way.

Identification marks for aircraft used on behalf of the League of Nations were evolved, but again this can scarcely be claimed to be a momentous question, nor to assist materially in bringing nearer the day when aviation is a commercial proposition. Maps of the North Polar regions may be fascinating subjects to a few adventuresome explorers, but some means whereby a pilot can find his way from London to Paris in a dense fog would have had considerably greater practical value. The coining of new words may have provided the delegates with a good deal of relaxation, but calling an aeroplane an "aerodyne" is not very likely to increase appreciably the paying load which it can carry, nor to make it any more immune from forced landings.

Upon the issues that really matter, such as the question of a uniform system of load factors and a uniform standard for airworthiness certificates, the recent meeting in London does not, as far as has transpired, appear to have reached unanimity, nor,

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For Sizes and Prices, see Ad'ert., page xx.

### DIARY OF FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in this list:—

- 1927
- May 10 .... Aero Golfing Soc. Match, Berkhamsted.
  - May 12 .... "Aerial Survey," Maj. H. Hemming, A.F.C., before Inst.Ae.E.
  - May 15 .... Hampshire Air Pageant, Southampton Aerodrome, Hamble.
  - May 19 .... Aero Golfing Soc. (FLIGHT Cup), Addington.
  - May 19 .... The Royal Tournament, Olympia
  - May 23 .... "Steels for Aircraft," Sir Robert Hadfield, Bart., before Inst.Ae.E.
  - May 25 .... Inst.Ae.E. Visit to the National Physical Laboratory, Teddington, Middlesex.
  - June 4 .... Inst.Ae.E. Visit to Croydon Aerodrome.
  - June 4-16.... Fourth International Aero Exhibition, Prague.

it seems, is a decision likely to be reached for some considerable time. Unless the International Commission for Air Navigation gets down to brass tacks and ceases to flirt with subjects which do not amount to a row of pins, there is little hope of sensible development and progress being made in the matter of international aviation.

## Seaplanes

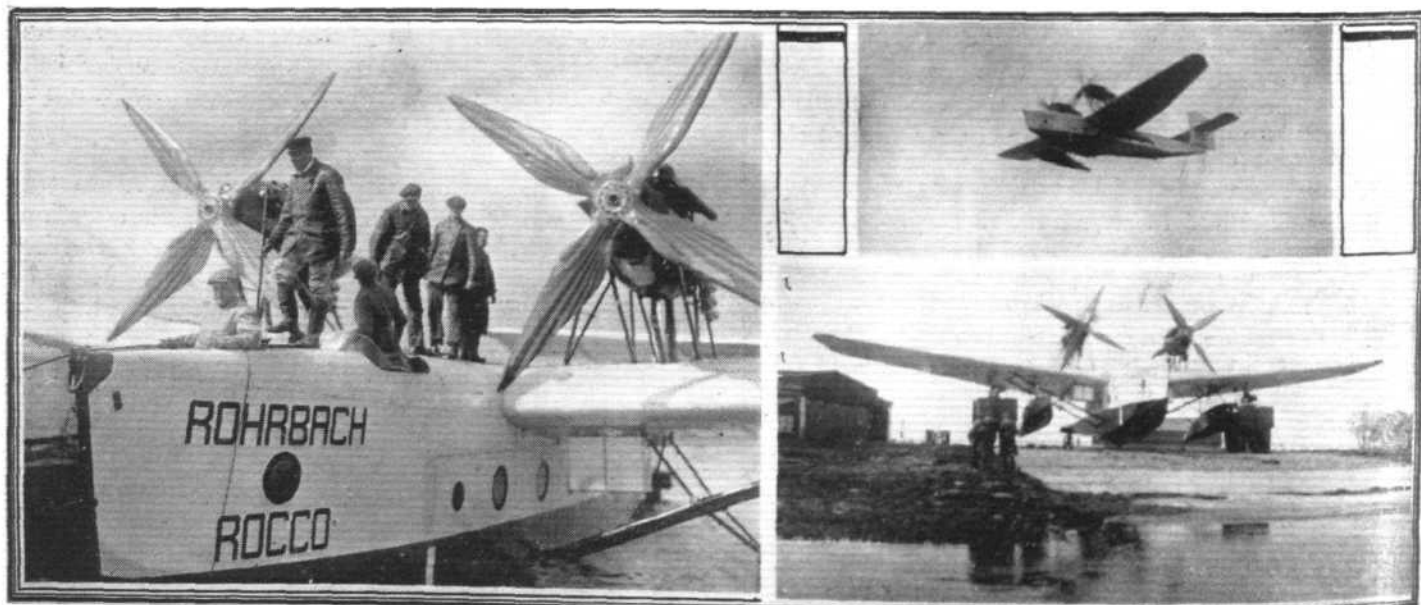
"It is not only for military and naval purposes that we in the British Empire have to consider the large seacraft. For commercial work the seaplane or flying boat has qualities to offer to the travelling public greater than the corresponding land machine, once it is proved to the public that travel by air over the sea is not attended (except as a very remote possibility) by the chance of a forced alighting and shipwreck. The aeroplane, where a large volume of passenger traffic is available, has to compete with railway services with speeds of anything up to 60 m.p.h. The seaplane or flying boat rarely has to consider anything more than a 15 or 17 knots competitor. It is a fact to-day, that the aeroplane alone offers a real advantage as a competitive means of transport to land and sea facilities where narrow straits of water have to be crossed which greatly decrease the normal rate of travel. . . . "For this country, development of the seaplane is of paramount importance. We do not possess aerodromes or alighting harbours closer than Gibraltar or Malta. These provide much better facilities for flying boats than for land machines. All along our present trade routes, where coaling stations exist for the Navy, seaplane bases have been or could be formed. We have, therefore, with little expense, all the harbour organisation available for the development of seaplane or flying-boat routes, and these lie at points already familiar to the traveller by sea, and are available at little cost to this country. Wherever we look on Imperial air routes, the situation is marked out for development by flying boats."

This passage from the paper on "Seaplane Development," read by Major R. E. Penny, before the Royal

Aeronautical Society, on April 28, might almost have been an extract from *FLIGHT*, word for word, so accurately does it represent the views we have been expressing for several years now, and which, we regret to say, appear to have borne little fruit. Indeed, the case for the seaplane would seem to be so obviously sound that no persuasion should be required. Yet, up to the present moment, the sum-total of our commercial seaplane activities is—a weekly service between Southampton and the Channel Islands! Developments are promised, it is true, but they have been so long materialising that one almost begins to wonder. However, it is good to have such startling confirmation of our views from an authority on flying boats like Major Penny.

## Low-power Records

The establishment of a new world's record for duration by an American aeroplane recently, when the existing record was increased to 51 hours 11 minutes, has served to draw attention to a fact which may easily have been overlooked, namely, that not since just before the war, when a German pilot established a record of some 24 hours' duration with a machine fitted with an engine of 75 h.p. only, has a record been made with such low power. The Wright-Bellanca performance is a welcome proof and reminder that very high powers are not essential to the establishment of world's records of this nature. We believe we are right in stating that all duration and distance records established since the war have been achieved by machines fitted with much more powerful engines. Incidentally, may we remind constructors, light 'plane clubs, and private owners that the "light 'plane season is now open," and that as from May 1, world's records for light 'planes will be recognised by the F.A.I. There can be little doubt that even in this class of machine the possession of a world's record is an asset, and the excuse of prohibitive cost cannot well be advanced in this case. Who will be the first to establish a British world's record for light 'planes?



THE ROHRBACH "ROCCO": On the left, the crew getting on board for the first test flight. The pilot on this occasion was Herr Landmann. On the right, the machine on the beach. Note the two trolleys used for beaching the machine, which are attached outside the wing struts and support the machine from there. Above, a view of the machine in flight. On its first test flight the "Rocco" is reported to have got "unstuck" in 10 seconds! The engines are Rolls-Royce "Condors."

## THE NEW DURATION RECORD

### Some Particulars of the Equipment Used

RATHER more than usual interest attaches to the world's record for endurance recently established by two American pilots, Chamberlin and Acosta. Not only was the record raised to 51 hrs. 11 mins., but the power used in establishing this new record was a great deal lower than that employed in—we believe—any endurance record since the 24 hrs. established in Germany just before the outbreak of war. The result has been that one has almost come to look upon very powerful machines, where either endurance or long-distance flights are concerned as a necessity. Above a certain point there is admittedly no theoretical foundation for such a belief, and the Wright-Bellanca record is a welcome reminder that "giant" aeroplanes and engines of thousands of horsepower are not necessarily essential for records of this nature.

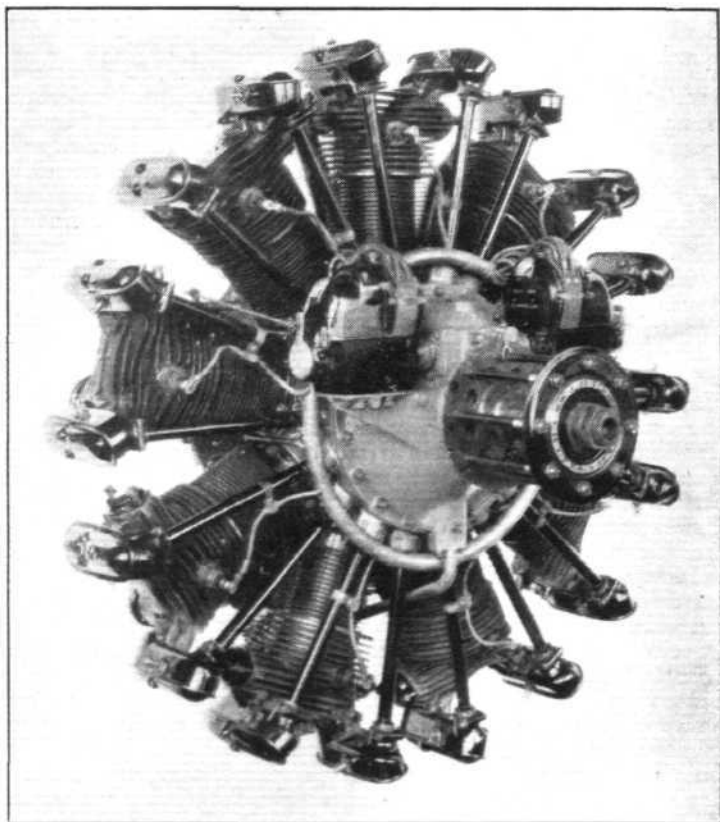
The Wright-Bellanca monoplane is, in point of fact, quite a small machine of the cabin type, as the accompanying photograph will show, and the Wright "Whirlwind" engine is of 200 h.p. only. This machine probably represents about the smallest with which such endurance could be obtained, since the carrying of two pilots is a necessity, and the weight of the crew would become too large a percentage in a smaller machine.

The Wright-Bellanca monoplane was designed by Mr. Bellanca, while he was still with the Wright Aeronautical Corporation, and was built at the Paterson, New Jersey, works of that company. Mr. Bellanca left the Wright Company only when they decided to discontinue building aeroplanes and concentrate solely on engines. The machine was sold to Mr. Bellanca some two months ago.

The two pilots who established the new record were Mr. Clarence D. Chamberlin and Mr. Bert Acosta, both of whom had been in the employ of the Wright company for a long time, Chamberlin as test pilot.

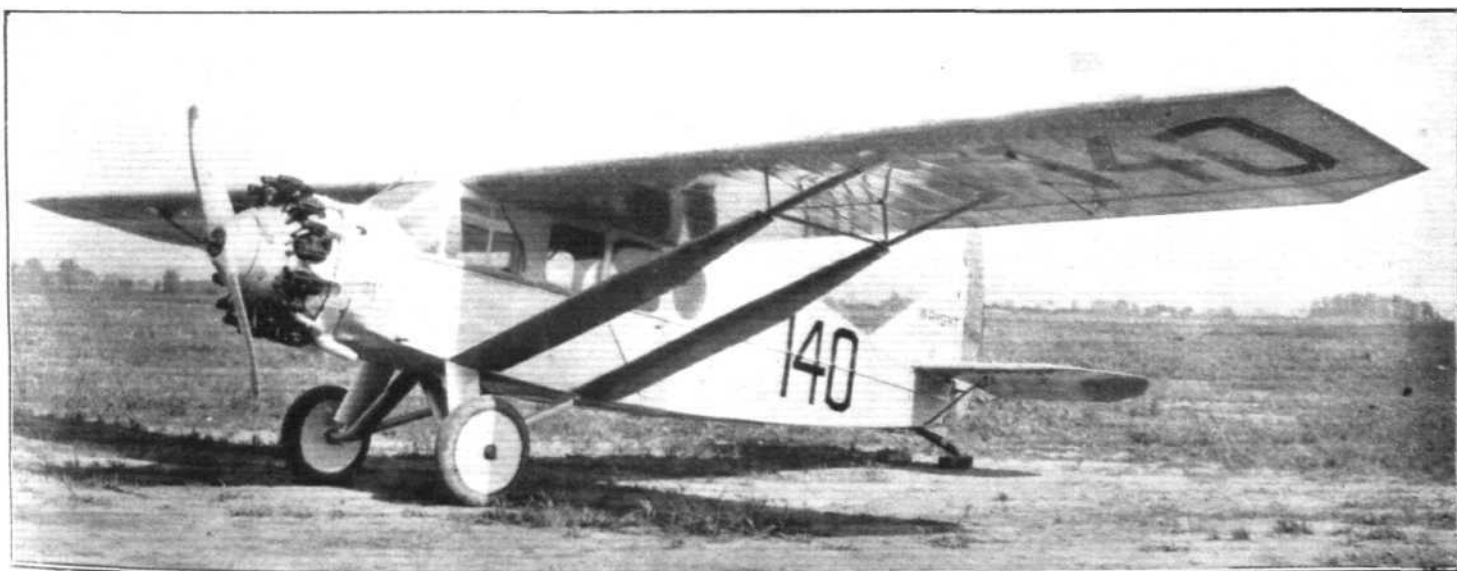
The Model J-5 Wright "Whirlwind" engine used in the record flight was a stock engine, built some eight or nine months ago, and had already done some 200 hours' running before the endurance flight. Two of the outstanding features of this flight were the low fuel consumption and the low oil consumption. During the 51 hrs. 11 mins. flight, the quantity of petrol used was 384 gallons, or approximately  $7\frac{1}{2}$  gallons per hour, while the oil consumption was only 38 lbs., or rather less than 1 pint per hour.

The engine was in excellent condition at the end of the flight, and actually the machine was refuelled and flown to another aerodrome, really before the engine had cooled off after the endurance flight.



**51 HOURS 11 MINUTES:** This photograph shows the Model J-5 Wright "Whirlwind" used in the Wright-Bellanca monoplane on which a new world's duration record was established recently. The engine had already done approximately 200 hours' running prior to the record flight.

At the moment, it is not known definitely what distance was covered in the endurance flight, but it would appear likely that this must have been a good deal more than sufficient for the direct crossing of the Atlantic.



**A RECORD BREAKER:** The Wright-Bellanca monoplane upon which recently a new duration record of 51 hours 11 minutes was established. The pilots were Clarence D. Chamberlin and Bert Acosta. The engine fitted was a 200 h.p. Wright "Whirlwind" of the type used by Commander Byrd on his flight to the North Pole in the Fokker monoplane.

#### Resumption of Air Mail Services

THE Postmaster-General announces that certain despatches of letters and parcels by Air Mail routes, which were suspended during the winter season, were resumed on

May 2. Particulars of these resumptions, and of recent alterations to the Air Mail leaflet, are given in a Spring Supplement to the leaflet obtainable at any head or branch Post Office.

## DEATH OF LORD COWDRAY

It is with very great regret that we have to record this week the death, at Dunecht House, Aberdeenshire, on May 1, of Viscount Cowdray. With Lady Cowdray, Lord Cowdray was on his way to Aberdeen, the freedom of which city he and Lady Cowdray were to have received, when death suddenly claimed him.

One of the outstanding industrial figures of modern times, Lord Cowdray will, perhaps, be best remembered by readers of *FLIGHT* for two things: his position, for a little under one year, as Chairman of the Air Board, and his magnificent gift of £100,000 for the endowment of the Royal Air Force Club.

Weetman Dickinson Pearson was born in Shelley Woodhouse, Yorkshire, on July 15, 1856, and was educated privately at Harrogate. His grandfather was founder of the firm of S. Pearson and Co., which, with other great undertakings, Lord Cowdray was to build up to such gigantic proportions. He was made a partner in the firm in 1875, and soon proved to possess qualities far above the average. Of the many enormous undertakings of Weetman Dickinson Pearson there is little need to write here. He was created a peer in 1910, taking the title of Lord Cowdray of Midhurst, and in January, 1917, he was promoted to a Viscounty.

Early in 1917 Viscount Cowdray was asked, and agreed to become Chairman of the Air Board. The question of aircraft output was one of vital urgency at the time, and upon Lord Cowdray fell the task of co-ordinating the air forces,

which it was proposed to put under a single Ministry. A stipulation made by Lord Cowdray in accepting this office was that he should be paid no salary. Concurrently with the announcement that Lord Cowdray was to become in effect Air Minister, it was announced that Mr. Percy Martin, of the Daimler Company, was to take charge of aero engine production, while the supply of aircraft was to be placed in the charge of Mr. William Weir, of Glasgow. Under Lord Cowdray's leadership the output of aircraft material and the general increase in the size and equipment of the flying services bore testimony to the organising genius of the Chairman of the Air Board and his staff, culminating ultimately in the amalgamation, on April 1, 1918, of the Royal Flying Corps and the Royal Naval Air Service into one service, the Royal Air Force, with an Air Council and an Air Minister at its head.

In November, 1918, Lord Cowdray, in a letter to Major-General Sir Sefton Brancker, announced his decision to present a sum of £100,000 for the purpose of providing a service club for the Royal Air Force, and ultimately this club was opened on its present site, a magnificent testimony to the generosity of the first Air Minister. Actually Lord Cowdray's contribution to the R.A.F. Club has amounted to a good deal more than the original donation, and in him the Royal Air Force has lost its greatest and most influential friend. The club remains as one among many fitting memorials to a great genius and a great patriot.

## BOURNEMOUTH WHITSUNTIDE MEETING

THE Bournemouth Whitsuntide Air Race Meeting (under the Competition Rules of the Royal Aero Club) will be held at Ensbury Park Racecourse, Bournemouth, on June 4 and 6, 1927.

The following is a preliminary programme of races:—

### Private Owners' Handicap—Stakes £80

Open to any type of aeroplane privately owned by and registered in the name of an individual. The definition of "privately owned" is at the sole discretion of the Royal Aero Club, who reserve the right to refuse any entries. Open to all pilots not necessarily the owners of the aeroplanes. Course approximately 10 miles. First prize, £50. Second prize, £20. Third prize, £10, if six or more starters.

### High-Power Handicap—Stakes £70

Open to any type of aeroplane with engine of 100 b.h.p. or over. Open to all pilots. Course approximately 10 miles. First prize, £40. Second prize, £20. Third prize, £10, if six or more starters.

### Medium-Power Handicap—Stakes £100

Open to any type of aeroplane fitted with an engine weighing not less than 185 lbs. or more than 285 lbs. Open to all pilots. Course approximately 10 miles. First prize, £60. Second prize, £25. Third prize, £15, if six or more starters.

### Ladies' Purse, £35

Open to any type of aeroplane. Open to lady pilots only. Course approximately 10 miles. First prize, £20. Second prize, £10. Third prize, £5, if four or more starters.

### Low-Power Handicap—Stakes £35

Open to any type of aeroplane, the total piston displacement of the power plant of which does not exceed 1,500 c.c. Open to all pilots. Course approximately 10 miles. First prize, £20. Second prize, £10. Third prize, £5, if five or more starters.

### Bournemouth Hotels Association Sweepstake

The proprietors of certain hotels in Bournemouth wish to subscribe to a Handicap Sweepstake Race. The stakes provided will be allocated as follows:—

*First:* 35 per cent. to the owner of the aeroplane.  
30 per cent. to the hotel entering.

*Second:* 15 per cent. to the owner of the aeroplane.  
10 per cent. to the hotel entering.

The balance of 10 per cent. goes to the winners of heats not placed in the final. The aeroplanes will be allocated to the various hotels by the Royal Aero Club. It is expected that the stakes will amount to £150. Course approximately 10 miles. Owners of aeroplanes are requested to state if they are prepared to allow their aeroplanes to race under these terms. No entry fee is required from the owner of the aeroplane.

### Bournemouth and District Business Houses Sweepstake

The proprietors of certain business houses in Bournemouth and District wish to subscribe to a Handicap Sweepstake Race.

The stakes provided will be allocated as follows:—

*First:* 35 per cent. to the owner of the aeroplane.  
30 per cent. to the business house entering.

*Second:* 15 per cent. to the owner of the aeroplane.  
10 per cent. to the business house entering.

The balance of 10 per cent. goes to the winners of heats not placed in the final. The aeroplanes will be allocated to the various business houses by the Royal Aero Club. It is expected that the stakes will amount to £150. Course approximately 10 miles. Owners of aeroplanes are requested to state if they are prepared to allow their aeroplanes to race under these terms. No entry fee is required from the owner of the aeroplane.

### Consolation Handicap—Stakes £50

Open to any type of aeroplane which has not won a race during the Meeting. Open to all pilots. Course approximately 10 miles. First prize, £25. Second prize, £15. Third prize, £10, if six or more starters.

### The Royal Tournament

HIS MAJESTY will open the Royal Tournament (which attains its Jubilee this year) at Olympia on May 19. This year's Tournament which remains open until June 4, includes many interesting items. There will be mounted displays by units from the 1st and 2nd Cavalry Brigades, Royal

Horse Artillery, and R.A.S.C. The Royal Navy will have a section of the programme to themselves, while the Scottish regiments of foot are to undertake a pageant of arms which is to be called "Scotland." The Royal Air Force will give a display of physical training on the lines of the popular display presented at the Wembley Tattoo.

## THE INTERNATIONAL COMMISSION FOR AIR NAVIGATION

THE International Commission for Air Navigation opened at Industrial Court, Old Palace Yard, on April 25, Sir Philip Sassoon, Under-Secretary for Air, presiding. Some sixteen countries were represented, and part of the proceedings, which extended over three days, were held in private.

In his opening address Sir Philip Sassoon said the science of flight, born on the eve of the greatest war in history, owed its rapid development to maturity to the compelling demands of battle. Its youth was spent in carrying into a new element those internecine passions which from time to time had devastated Europe, and in adding new terrors to the destructive trade of war. It was for us, now that the strife was over, to show that the conquest of the air had other capabilities; that, despite its stormy introduction, its true future lay in the drawing together of the nations of the world, in the propagation of peace and good fellowship among men of all races, and in adding to the progress of civilisation and the prosperity and happiness of all peoples.

He was sure that it was with that guiding idea that the proceedings of previous meetings of this Commission had been conducted and this present Conference would be inspired. Already a great deal had been done by past conferences towards facilitating the development of air communications between nations and the progress of civil aviation generally. There had been a steady accession of States to the Commission, and the deliberations of the Commission had had very definite and beneficial results upon the safety and regularity of air transport.

Civil aviation was still, however, in its very early youth; the science and the practice of flight were still rapidly expanding. For very many years to come those who attend the meetings of this Commission were likely to find questions of high importance awaiting their consideration. He understood that among the questions which would be submitted at the present session would be one to carry yet further the progressive emancipation of that sex whose members we had always been accustomed to regard as ministering angels, even though we had hitherto hesitated officially to endow them with wings.

We in this country were now hardly in a position to refuse to the ladies full opportunity to qualify for any profession, including that of flying; and, indeed, the increasing number of ladies who were becoming qualified pilots was a very encouraging indication of the growing popularisation of flying as one of the accepted means of communication. The sooner the general public in all countries came to regard flying as an ordinary method of transport for ordinary occasions, instead of looking on it as a species of adventure, the sooner civilian flying would come into its own, and the sooner commercial air transport companies would get upon a paying basis financially.

This Commission, he continued, could contribute only indirectly to that result; but indirectly it could do and had done a great deal of useful work to that end by solving, or helping to solve, the technical and other difficulties which from time to time existed between different States, by ensuring that proper standards of efficiency and safety were observed in all countries, and by ensuring also that air passengers travelling from one State to another should be able to complete their journeys with a maximum of comfort and a minimum of inconvenience.

In all these directions there was ample justification for the continued existence of this International Commission. Yet the drawing up or modification of international agreements or regulations was only part, even though an important part, of the good work which it performed.

There was another and a most valuable side to its activities. Here, for the first time in history on anything approaching the same scale, we had representatives of a great number of different States and peoples sitting together for the regulation and development for their mutual benefit of a great and growing means of international communication. The effect of these periodic sessions must be something far greater and more lasting than the promulgation of regulations and the co-ordination of international civilian flying. It must inevitably give rise among those taking part in these sessions, and ultimately among those great populations whom they represented, to a sense of community of interest in the beneficent development of the last and greatest of man's scientific conquests.

Whatever individual interests might be here represented, must be conscious of an interest which was paramount

and was shared by all—namely, the interest of humanity at large in the utilisation for the common good of the most powerful agent which had yet been devised for bringing the nations of the earth closer and closer together.

Every year, concluded Sir Philip, which showed progressive increase in the number of miles flown, the number of passengers carried, and the quantity of goods borne by air, meant that the old barriers of time and space, which for centuries had made for race prejudice and misunderstanding, were being broken down. There was no greater enemy to peace than ignorance. With the growth and popularisation of civilian aviation citizens of different nations would get to know each other better than they had ever been able to do in the past, and with the better knowledge must come a better feeling which would make for the preservation of international peace.

At the conclusion of the Commission on April 27, it was announced that a number of problems had been discussed and that several decisions had been arrived at. Amongst the most important of these may be mentioned the following:—

It was agreed that women pilots should be permitted to qualify for "B," or commercial, licences and operate commercial aircraft, but every woman pilot must present herself for medical re-examination every three months, and not every six months, as is the case with men pilots. In this connection, however, it is interesting to note that, whilst thus officially recognised, women commercial pilots have not found favour with certain air transport companies. It is reported that Imperial Airways, Ltd., the French Air Union, and Deutsche Lufthansa have all stated that they will *not* employ women pilots!

Regarding rules of the air, it was decided that all machines travelling on any recognised international air route shall keep to the right to avoid colliding with aircraft flying in the opposite direction. This rule has, of course, been in use provisionally for some time past, but has only now been agreed to generally for international application. In the future, therefore, all aircraft following prominent landmarks such as railways, canals, etc., will keep same on their left at a distance of approximately 300 m.—except in special cases. When crossing it they will do so at right angles as rapidly as possible.

A new distress call for the world's code of signals has been adopted for aircraft in difficulty, but not sufficient to warrant an S.O.S. call, in the form of an international signal of "P.A.N."

Another important decision was to the effect that aircraft used for the League of Nations shall have a special identification mark, in order to obviate delay due to customs, etc., when delegates are being hurriedly transported over different countries. This will take the form of a broad black line painted across the usual identification letters. Thus the country of origin would be retained, and at the same time a clear indication that the machine was on an important mission on behalf of the League is provided. Probably the time is not far distant when the League will possess its own fleet of aircraft.

A certain amount of progress was made on the discussions regarding a standard international minimum for certificates of airworthiness of aircraft, but there still remains a lot to be done before a final conclusion can be arrived at. There is, of course, great variety in the methods of working out load factors employed by different countries, and when a conclusion is reached it is not expected that the high standard at present required of British aircraft will be adopted.

A new dictionary of air terms was discussed, and several new words were adopted. For instance, it was decided to use the word "aerostat" to define internationally all lighter-than-air craft, whilst "aerodyne" will stand for all heavier-than-air craft.

Arising out of the recent balloon-jumping accident, the Commission recommended that the different States should mark the posts of electric power transmission lines in the vicinity of aerodromes.

In order to assist future air expeditions to the North Pole, it was decided to compile a general aeronautical map for the Polar regions.

At the conclusion of the final session, Sir Philip Sassoon, Under Secretary of State for Air, congratulated the conference on the work it had achieved.

The next session will be held in Rome, at the invitation of the Italian Government, in October.

## GOVERNMENT BANQUET TO MEMBERS OF I.C.A.N.

On April 26 the Members of the International Commission for Air Navigation attended a Government Banquet held in their honour at Lancaster House.

Sir Samuel Hoare, Secretary of State for Air, who presided, said he was delighted, as the representative of His Majesty's Government, to welcome once again to London the International Commission for Air Navigation, and to propose the toast of the guests who were so ably representing their respective governments. During the seven years of its existence the International Commission had helped in many directions to develop civil and commercial flying. By the agreements that its members had reached upon such questions as the registration of aircraft, the reciprocal recognition of certificates of airworthiness and licences, the establishment of customs aerodromes and the rights of flying over foreign states, it had brought a measure of order and mutual help into a field that would otherwise have been devastated by anarchy and national suspicion. Year by year the influence of its good work was extending as year by year civilised communities were increasingly realising the necessity of co-operation between each other. States that had not hitherto been members of the Commission were now anxious to join it.

Referring to the proposal to give equal rights to women pilots in the air, Sir Samuel said he was naturally sympathetic to the proposal. The number of women pilots was increasing in England. Indeed, the interest of women generally in flying had been one of the conspicuous features of civil aviation during recent years. "Here in England," added Sir Samuel, "if I may give an example taken from my own personal knowledge, there was Lady Maud Hoare's flight to and from India. So far as the Continent is concerned, I notice in today's newspapers that an enterprising German lady has arranged to be married in an aeroplane, but has wisely decided to have the wedding breakfast upon terra firma."

We realised, proceeded Sir Samuel, better than most people that civil aviation was still a long way off perfection. Civil air lines still needed heavy Government subsidies to support them. A small percentage of the travelling public made use of them, and there were still some people who did not believe in their future.

Let them admit these facts, but whilst admitting them let it be remembered the very considerable progress that had been made since the International Air Convention was signed in 1919. In that year the mileage flown on regular air services was rather more than a million miles. In 1926 the mileage flown was over 16 million miles. The machines of today were two or three times more powerful than they were in 1919 and carried three times as many passengers. It was taken the largest air mail service as an example, we found that in 1919 the French service carried 9,000 letters between Toulouse and Morocco. In 1925 it carried 7½ million letters. If we took the British London-Paris service as another example, we noticed that so safe and regular were the machines, that the freight insurance premiums were 6s. 8d. per cent. for land or sea transport and only 2s. for air transport. Equally significant was the progress that had been made in reducing operation costs. The new three-engined machines that had recently been adopted by the Imperial Airways Company were running at less than half the cost per ton-mile of the single-engined machine of even so recent a date as 1922. There was, he said, no need to give further examples of the progress that had been made, of the progress, for example, in the two sister services of aviation, wireless and meteorology, services, the vital importance of which he constantly realised during his recent flight to India.

He had, he hoped, said enough to show that this new form of transport had advanced far more quickly than the railway or steamer advanced a century ago, or the motor-car within their own memory. If during the next 10 years we could all of us concentrate upon the problems that mattered, upon first and foremost the safety of the traveller, secondly upon his comfort, and thirdly upon the scarcely less urgent question of bringing down still further the operating costs of flying lines, we could hope to see an advance made far greater than any that we could claim since 1919.

He hoped they, whether as members of the Commission or as individuals of great influence in their respective States, would contribute to bringing about this desirable result. They were all engaged in the attempt to make aviation an asset and not a liability for the human race, and therefore all desired to develop flying for the purpose of peace, trade, and intercourse, and to restrict it, as far as possible, as an instrument of destruction.

Today in London we were considering the methods that should be employed in developing its uses for peace. Today also in Geneva our representatives were considering the military aspects of the problem and were discussing the possibilities of restricting its powers of destruction. Speaking as the representative of His Majesty's Government, he could say that the British Government was as keenly interested in the one side of the problem as it was in the other. They were anxious to see these deliberations succeed in both cases. We in England had hitherto taken the view that the best hope of success for the restriction of air armaments was to move step by step rather than to attempt at once the solution of a great and complicated problem. We had held the view that if, even though the action be prompted by the best intentions in the world, the problem was at the outset complicated and weighed down by a consideration of all the various points connected with it, there was a grave risk that any advance would be made impossible or at least regrettably delayed. This was the reason why the British representative at Geneva proposed that in the matter of air armaments we should deal first with that side of the problem that was most urgent and that appeared to be most simple, namely, the risk to the great cities of Europe from the sudden attacks of the metropolitan air forces within reach of them. Other countries did not agree with us. They wished rather that all the questions connected with air armaments should be simultaneously taken into account. In deference to their wishes, therefore, the British Government modified its original position and undertaken to widen the problem of air disarmament in the direction that the others desired.

None the less, he felt nervous lest it would be found that when, in the final stages of the treaty, the actual question of numbers of machines came to be settled this widening of the problem would force nations to put in very high demands for their own requirements or would stifle the whole problem in a maze of complexities.

M. P. E. Flandin (France) said that Sir Samuel Hoare had shown them that the progress of civil aviation had been great. The Commission had not, he said, been able to do all for civil aviation it had hoped to do, but it had done much—and Sir Samuel Hoare had set a very fine example by his flight to India and back. By this flight he had shown how easy it was to get into an aeroplane and arrive safely at the desired destination. It had, in fact, shown that long distance flying was as easy as a long journey by train. Referring to the question of disarmament, M. Flandin stated that the attitude of France was that she was anxious for disarmament, but feared that if advance in this direction was too rapid she would place herself at a disadvantage as regards defence.

Gen. Piccio (Italy) said that although the Commission had not achieved all its aims, it had at least done something for the organisation of international aviation. Sir Samuel Hoare had passed over Italy in his flight to India, and had thereby stimulated commercial aviation in that country.

In proposing the health of the Chairman, Maj.-Gen. the Rt. Hon. J. E. B. Seely said that while other Air Ministers had accomplished long-distance flights, Sir Samuel Hoare was the first to be accompanied by his wife. It was being realised more and more that aviation must be supported by peoples and by Governments. A great means of locomotion, once dreamt of and hoped for, had at last come true.

Among those present were the following:—M. Pierre Etienne Flandin, M. Zdenko Janák, the Rt. Hon. Sir Joseph Cook (High Commissioner for Australia), Mr. J. S. Smit (High Commissioner for South Africa), M. Hiroyuki Kawai, Col. George P. Ostoyitch, Maj. Sir Philip Sassoon, Bart., M.P., The Duke of Sutherland, Gen. Constantine Dumitrescu, Maj. Count R. Michalowski, Lord Thomson Maj.-Gen. the Rt. Hon. J. E. B. Seely, Viscount Burnham, Gen. Piccio, Viscount Peel, Sir Walter Nicholson, M. José R. Echegarria, Lord Gorell, Luang Jamni Kolakarn, M. Emile Allard, M. Carlos A. Pons, Col. N. Guimares, Col. Hiam, Mr. F. G. L. Bertram, M. D. A. Nadumoff, Air Vice-Marshal D. Munro, Sir Geoffrey Butler, M. Felix Camerman, Mr. C. L. Bellock, M. Albert Roper, Lieut.-Col. E. Gold, Group-Capt. Martin Flack, M. Jacques Sabatier, Mr. R. J. Goodman (Couch), M. le Vicomte Max Vilain XIII, Commander Brionesi, Air Commodore L. F. Blandy, M. Michel Guibert, M. A. Guidoni, Flight-Lieut. H. Edwards, M. Edmond Sudre, M. Daniel Haguénan, Gen. Cav. Rodolfo Verdúzio, M. R. L. Megarry, Cav. Off. Dott Salvatore Cacopardo, M. F. de Jouffroy, Flight-Lieut. J. R. Bell, Lieut. J. M. Bos, M. E. E. Beare, Mr. A. J. B. Rutherford, M. Julien, etc.

# PRIVATE



# FLYING

A Section of **FLIGHT** in the Interests of the Private Owner, Owner-Pilot, and Club Member

## AN EASTER TOUR ON A D.H. "MOTH"

Mr. Kittel's Log

DURING the Easter holidays Mr. D. Kittel, who has been the owner of a "Moth" for considerably more than a year, his machine (G-EBMU) having been registered on December 11, 1925, made a lengthy tour in Belgium, Germany and Holland, and has been good enough to send us the following brief account of his trip. Mr. Kittel does not regard the tour as anything out of the way, but when it is remembered that he is a private owner and in no way connected with the aircraft industry, so that his flying is of a purely amateur nature, using the word in its widest sense, we think it will be agreed that the "log"—for it is little more than that—records an excellent example of what the ordinary non-technical owner of a private aeroplane can do in the way of using his aeroplane as an aeroplane should be used. Inci-

the same following wind was blowing. What by train is a tedious journey of over 7 hours, occupied only 1 hour 20 minutes. Leaving Brussels about 11 o'clock I was at Bickendorf Aerodrome by 20 minutes past 12. Customs formalities were all easily disposed of, and the 'Carnet de Passage' or 'triptyques' supplied by the Royal Aero Club proved exceedingly useful. It was used in the same way as those supplied by the Automobile Association for taking a car abroad.

"Easter Sunday I was able to lunch with a friend living at Koenigswinter, about 2 hours by train down the Rhine. There is a private aerodrome at Hangelar, some 3 kms. from his house; this occupied only 15 minutes from Cologne. The same afternoon I returned to Cologne and, after filling



[ "FLIGHT" Photographs ]

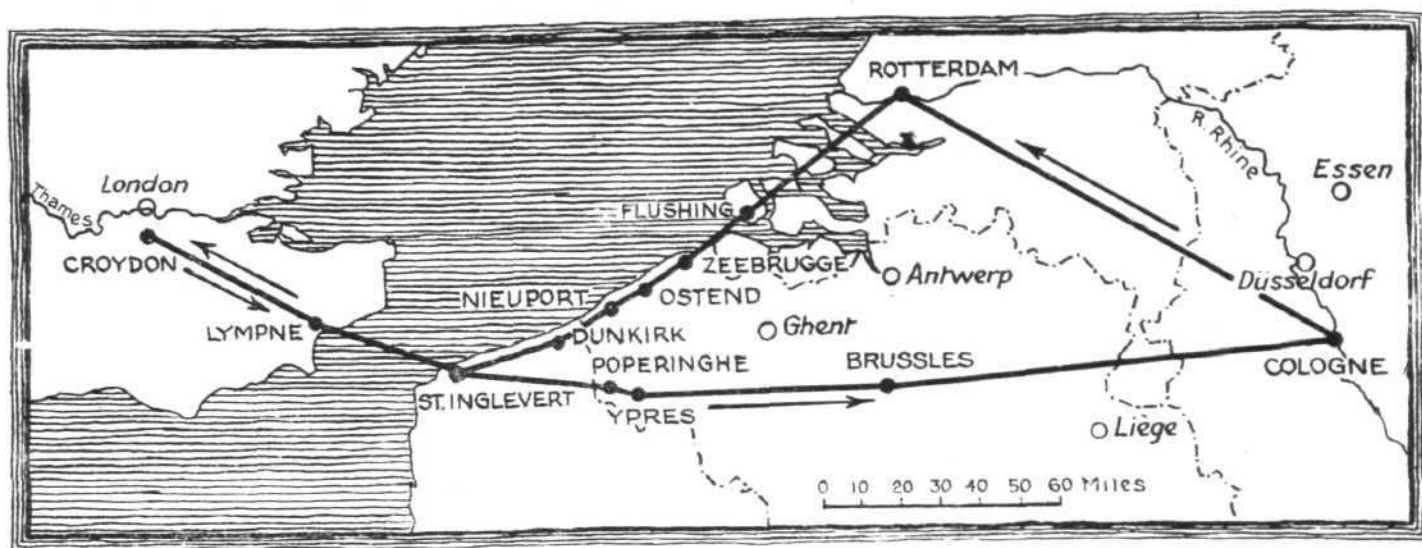
AN EASTER TOUR ON A D.H. "MOTH": These photographs show Mr. D. Kittel in the cockpit of his machine, and inset, starting on his flight.

dentally, the tour would not have been easily accomplished in any other way, and certainly would have been nothing like as comfortable by any other means. Here is the "log":—

"Leaving Croydon about half-past 11 on Good Friday, the first landing was made at Lympe in order to completely fill the tank so that Brussels could be reached in the next stop without having to descend for petrol. Leaving Lympe at 1 o'clock, with a nice following wind, the Channel crossing took exactly 15 minutes, and within 25 minutes of leaving Lympe I was circling over St. Inglevert, to show that I had safely crossed the Channel. From there the course lay over Poperinghe, Ypres and the war area, and Brussels was reached by 2.50 p.m.—2½ hours' flying time from London.

"Next day the destination was Cologne, and fortunately

up with petrol, proceeded to Rotterdam (Waalhaven), and in spite of a head wind of 5 to 10 miles an hour, it took only 2 hours 10 minutes. This was the only part of the trip which did not prove so easy, because, flying by means of an ordinary road map, it was exceedingly difficult to distinguish the various rivers and canals with which Holland abounds. There was so much flood water, and streams not marked on the map, that an hour and a half after leaving Cologne, it was gradually forced on me that I had to admit to myself I had only the foggiest idea as to my actual position. After going on for another 15 minutes or so, and mentally debating the advisability of trying to land and enquire my position I spotted a point where a railway and road crossed a broad river (which I took to be the Rhine) side by side. It was then comparatively easy to find this marked on the



**MR. KITTEL'S EASTER TOUR:** This sketch map shows the route followed by Mr. Kittel on his flight to Belgium, Germany and Holland on his D.H. "Moth" (G-EBMU). The tour was made at trifling cost and in the greatest comfort.

map, which proved to be a point rather off the course. About 15 minutes' flying from there brought me in sight of Rotterdam.

"Next day the return journey was made from Rotterdam to London in 3 hours 50 minutes, with one stop at St. Inglevert for lunch and petrol. The journey proved uneventful and rather monotonous all down the Belgian coast after leaving Flushing, past Blankenberg, Zeebrugge, Ostend, Nieupoort, Dunkirk, etc., with an unending panorama of seashore and sand dunes, which occupies about 2 hours.

"Such a journey, although not remarkable in any way,

shows what a great distance can be accomplished in a short time on a small machine by the average person who, like myself, has no particular knowledge either of map reading or navigation. But the importance of a good map cannot be over-estimated, for, on the outward trip to Cologne, I was using Ordnance Survey maps of 4 miles to the inch, and with these it was possible to pick out almost every clump of trees and road. But from Cologne to Rotterdam with a road map it was very difficult. For the stretch Rotterdam to St. Inglevert no map is necessary as it is merely a matter of following the coast."



## DELIVERY OF A "MOTH" TO GERMANY

WHEN they recently delivered a "Moth" by air to Germany, Captain Broad, the De Havilland test pilot, and Mr. F. N. St. Barbe, the business manager, had a wonderful reception there, and they have brought back very good impressions of the future of aviation in Germany. It will be remembered that starting from Croydon on April 22 they accomplished the 450-mile journey to Hanover in 4 hrs. 25 mins. flying time, halting at Ostend to make a small adjustment to the carburettor and again at Rotterdam for lunch. They could have easily reached Berlin that day only they delayed as the official reception arranged for them had been allocated for the next day, Saturday. On this day they left Hanover at 2 p.m. and reached Berlin, a distance of 160 miles, in 1 hr. 15 mins. On landing at Tempelhof Aerodrome, which is the Croydon of Germany, and has recently been considerably extended to accommodate the rising volume of air traffic, they had an extraordinary reception. First they were greeted by Herr Karl Bercowitz, who is the actual purchaser of the Mark II Cirrus "Moth," and who has presented it to the Deutscher Sportflieger Club. Herr Bercowitz is a very wealthy Berlin banker with business connections in a number of the principal European capitals, and his widespread interests entail considerable travel, which, being a very busy man, he does by air. This is the reason of his very great interest in aviation. He is very keen to see the private flying movement develop in Germany. The "Moth" he has purchased is to be used by him for his extensive private travels all over Europe for which he will be piloted by Herr Heft, who may be regarded as his private air chauffeur, as well as being used by the Deutscher Sportflieger Club.

On their arrival Captain Broad was presented with a large bouquet of flowers, representing the colours of the London Aeroplane Club, by Herr Alfred Friedrich, the secretary of the Sportflieger Club, and one of the oldest German pilots. As far back as 1913 he was very prominent, carrying out flights from Berlin to Paris on an Etrich-Taube, and also from Paris to London. Amongst the welcoming gathering at Tempelhof were representatives from the British Embassy, the German Air Minister, the Aero Club, many members of the Sportflieger Club, and hosts of the ever-present Press.

In the evening they were entertained to dinner at the Aero Club von Deutschland, and they had the great honour of being made honorary members both of the Aero Club and also of the Sportflieger Club. On the next day Capt. Broad, carrying Herr Bercowitz as his passenger, flew from Tempelhof to Staaken, which is the German Club's headquarters. Here Capt. Broad went up alone and gave a very spectacular demonstration of aerobatics on the "Moth" and it can be imagined that the 150 members of the club who watched him were very impressed, for he is naturally a great expert on this popular mount from his own stable. In particular the get-off and the rapid climb made an extraordinary impression on them (the initial climb of the "Moth" is 625 ft. per min.), and they were very generous in their open appreciation and enthusiasm. After Capt. Broad came down, Herr Heft tried the machine and as he has been used to flying heavy Junkers machines for some years he was naturally cautious at first with the light plane. He was not used to the rapid rate of climb and the degree of sensitiveness of the controls, but he soon overcame these characteristics of the "Moth," and subsequently performed aerobatics, including loops, which he had not done since the war. This obviously shows the easy adaptability of the "Moth."

Both Capt. Broad and Mr. F. N. St. Barbe were impressed by the "air-mindedness" and keenness of everybody they met. Unfortunately for private flying in the country, owing to the Treaty of Versailles, the German Government are not yet allowed to assist any training organisation, consequently the light plane movement cannot be subsidised, but it was evident to them that if assistance was permitted clubs would commence all over the country and there is no doubt that they would be very well supported. The two visitors also had many opportunities of seeing the activities of Luft Hansa, and realised that the amount of air travel extending throughout the country is really remarkable. The arrivals and departures of air liners at Tempelhof, Hanover and Cologne were literally continuous. They saw the fleet of Luft Hansa machines labelled for a series of destinations, to all parts of Germany, to Austria, Hungary, Poland, Denmark and Sweden, and the busy scenes made them inevitably

compare them with trains leaving one of our great termini for all directions. There seemed plenty of passengers, who were catered for in an excellent way. At the Tempelhof Aerodrome the booking office, passengers and luggage departments, weighing arrangements, waiting rooms and restaurant are on the scale of those in our railway stations. Luft Hansa were very helpful, and British air travellers touring in Germany can rely on getting most prompt and efficient service everywhere.

While in Berlin a visit was made to Oberregierungsrat Geyer, who is the Director of Civil Aviation, and a discussion took place on the present regulations under which we in England have to obtain permission from the German Embassy before we can fly into Germany. Capt. Broad and Mr. St.

Barbe explained that this permission takes three or four days or even more to obtain and that it is very inconvenient for the private owner who may suddenly make up his mind to spend the week-end in Germany, in the same way as he now goes to Land's End, Paris or Brussels. The director was very sympathetic, but explained that the uncompromising attitude of the French makes it impossible for Germany to improve their facilities for air tourists as they obviously could not make an exception in the case of the English without giving equal benefit to the French, who would certainly not reciprocate. But predominant over all their impressions of this interesting visit to deliver the first British aeroplane purchased by Germany since the war, is the extreme cordiality, friendliness and hospitality with which they were everywhere received.

## THE BRISTOL AND WESSEX AEROPLANE CLUB

At the present stage in the development of the light aeroplane movement it is showing a tendency to evolve in three separate directions: first, through the subsidised clubs; secondly, through the private-owners; and thirdly, through the unsubsidised clubs. Of the three the latter, perhaps, have the hardest struggle for existence, for they must become established entirely by their own efforts and survive for some time before they can hope for any official assistance. With them it is a case of the more they accomplish for themselves the more hope they will have of receiving help from elsewhere; for when the Air Ministry come to consider an extension of their benevolence towards the light aeroplane movement it will only favour those clubs who have the best prospects of making an adequate response. Until this wand of generosity sweeps wider these clubs must remain in a class by themselves, and to distinguish them from the others we could, perhaps, most appropriately term them the *very* private clubs; for this description will most conclusively define their privacy, dissociate them from all official patronage, reveal them in their struggling independence, and guide those sympathetic sponsors of private aviation like Norwich is blessed with, in case they are seeking a further outlet in which to bestow their kindness. As we know, one of the most progressive of these potential very-private clubs is Bristol, which is going to embrace the air enthusiasts of the Hardy country. Following on the same sound plans as Norwich, we know that they have recently had a public demonstration, not quite on the same grand scale, but then they already have the advantage of being an old centre of aviation interests. It has been one of their industries and they probably want very little coaching on "airmindedness." They still have two famous aircraft firms active in their midst. Now, as a further stone in the

foundation of the club they have determined the conditions that shall rule their existence, and to some extent they are similar to those of the established clubs with which **FLIGHT** readers are familiar from the last issue. The important details that differ concern the question of finance. For instance, there is an entrance fee, which is not the rule with all the subsidised clubs; but, of course, no comparison can be made with their circumstances. As a sort of compensatory adjustment for this, the cost of instruction has been fixed at 25s. per hour up to 4 p.m. each day, after which it is the usual 30s. per hour, the week-ends and holidays being excluded. One cannot help reflecting that this consideration will be misplaced, for it is a natural assumption that the pupil who has the time to learn to fly before 4 p.m. in the day has hardly to plod at industry for a living, which means that he is more affluent than the pupil whose leisure is limited to the evening and week-ends. This is, no doubt, merely an incidental and unintentional effect of the rule, and its real purpose is to try and equally distribute flying instruction over the whole flying time available each day and avoid any congestion in the evenings: for it will be an inducement for those who can find time to fly before 4 p.m. to do so.

The membership is to be divided into three classes, namely, Pilot Members, Observer Members and Associate Members, in that order of distinction. The exact differences between the last two is that the former pays an entrance fee of £2 2s., a yearly subscription of £2 2s., and pays 25s. per hour for passenger flying. The Associate member pays an entrance fee and yearly subscription fee of 10s. 6d., respectively, and is entitled to short flights at 5s. each; so apparently the advantage the Observer member gets for the privilege of being an Observer member is like that of the stallholders



**THE PRODUCTION TYPE "AVIAN":** One of the first Avro "Avians" to be completed under quantity production conditions was purchased by the R.A.E. Aero Club of Farnborough (the amateur designers and constructors of the "Hurricane" and "Sirocco" machines), and was used, almost immediately after delivery, for racing in the various events at the Bournemouth Easter Meeting. This is the machine shown in the photograph, the registration letters being G-EBQN. The engine is a "Cirrus" Mark II.

over the galleryite—a better look at the show, for the Associate Member can only fly on certain days. No doubt the former will get a better badge for his money. This system, inconsistent as it may seem, will probably cater for the two classes of club members that undoubtedly exist, the one who is an inveterate flier and the other who only likes to fly occasionally. It will create an harmonious arrangement for them both, for the one wants to crowd the other out and the other wants to be crowded out.

The Pilot members will pay an entrance fee of £3 3s. and a yearly subscription fee of £3 3s., and will have priority over all the other members for flying facilities. The first fifty members enrolled have the honour of being termed as "Founder Members" with the material advantage of being exempted from paying an entrance fee.

All those who wish to join must be proposed and seconded in writing by two who are already members, which will make

the latter very popular people. Subscriptions are paid on election, and subsequently on January 1 of each year, but it does not state, in accordance with the rules of some clubs, whether, in the event of a member joining in the course of a year, he has to pay the full yearly subscription for that year, and this is a point that wants to be made clear. We note that, although the full scale of entrance fees is definitely stated, there is a suggestion of the club compromising with a member, for in one clause it speaks of the payment of the entrance fee (if any), whilst in another clause it refers to the fee being fixed from time to time by the directors. But the main point is that it will cost a pupil no more to learn to fly than it would at a subsidised club.

There is the promise of an interesting race between the Bristol and Norwich Clubs for the honour of being the first new very private club to commence flying. We hope they both win!

## PRIVATE FLYING IN AUSTRALIA

In this field of so much aeronautical promise the light-plane movement is progressing through the medium of subsidised clubs on similar lines to those in this country. In many of the large States there have long been sections of the Australian Aero Club, and these have been forming the light aeroplane clubs. The nature of the subsidy is in the generous form of at least two "Moths" and necessary spares. One of the most active of these sections is that of New South Wales, which is the approved club for Sydney. At its inauguration it was fortunate enough to squeeze three "Moths" on loan from the Commonwealth Government, besides spare engines, a hangar, and club-house at Mascot Aerodrome. A bonus of £20 is received from the Government for every pupil who gains a private pilot's licence. Instructional flying is mostly restricted to the weekdays, so that the machines can be devoted to the pleasure of ordinary members who fly as passengers on Saturdays and Sundays, when a 15-minute flight enables them to have an excellent view of Sydney and the harbour from 2,000 ft. Although the Club's scale of charges are based on the lowest possible rates, which leave no profit, nevertheless they are considerably higher than those in this country. Members who are already pilots pay an entrance fee and a yearly subscription of £3 3s. respectively, and fly solo at the rate of £1 10s. per hour as against £1 here. A pupil member pays an entrance fee of £10 10s. and a yearly subscription of £3 3s., whilst his instruction flying costs him as much as £3 10s. per hour—more than twice our rate. The ultimate difference in the cost of learning to fly there and here is more than £30, for the averaged cost there has proved to be about £45. If a pupil passes through without causing any damage to the machines, he receives £9 9s. back when the Government grant of £20 is made to his club. The ordinary members pay an entrance fee and yearly subscription of £1 1s. respectively.

Their passenger flights cost them £3 10s. per hour, £2 for half an hour, and £1 for 15 minutes—again more than twice the amounts charged by our clubs. But without first-hand knowledge of monetary values in Australia, it is, perhaps, invidious to make comparisons and indicate differences. The Sydney club employs a first-class instructor pilot who receives £500 per year besides generous bonuses, a ground engineer, and a full-time secretary. The instructor is Capt. E. W. Leggatt, M.C., who served in the R.A.F. and the R.A.A.F.

Since the commencement of flying in August last year up to December the number of hours flown were 405, nine pupils gained a licence, 13 could fly solo, and 19 had been instructed. This represented 1,288 flights and 176 hours' instruction. The first nine pupils were found to have averaged under seven hours' instructional flying before going solo, under nine hours before passing for their licence, and they averaged under seven hours' solo flying before doing this.

The training system includes an elementary and advanced course, but the latter is only taken by the pupil at his wish after he has got his licence. The elementary course embraces the following: Taxying and handling of engine; demonstration of effect of controls with and without the engine; straight flying, level flying, climbing, stalling; gliding straight; taking off into wind; landing into wind and judging distance; turns up to 45°; gliding turns; turns over 45° with and without engine; elementary instruction in forced landings; solo; spinning and recovery. The advanced course includes climbing turns; sideslipping; taking off and landing across wind; simple aerobatics; advanced instruction in forced landings; and low flying (*i.e.*, correct turns at low altitudes). Apart from the licence issued by the Government, the club also issues a certificate to the pupil graded according to his ability, such as excellent, good or pass.

According to the rules of the club all members flying solo have to limit their flights to within gliding distance of the aerodrome, and they are held financially responsible for the transport of any machine back in the event of any landing beyond the aerodrome, whether it is forced or voluntary. All pupils have to attend a course of lectures on elementary aeronautical engineering at the Sydney University Extension Board, for which they pay a fee of one guinea. Exemptions from this are allowed on the consideration of the committee. No member must stunt a club machine without permission from the instructor, and at not less than a height of 1,000 ft., whilst the aerobatics allowed are looping, spinning, rolling, half-rolls, Immelman turns, falling-leaf, steep dives, zooming and others.

If a comparison is made between the conditions that prevail for entry to the Australian clubs, and those of ours it would seem that they are more conservative than we are, for whereas all we ask of an intending member is his name and address, and his nationality, they ask for details of his career from birth, and then two references to prove it. The medical examination, too, as set forth, is enough to alarm anyone far more than flying, and it seems a most necessary assurance that the club gives that failure to attain such a physical perfection will not inevitably disqualify a member who has given previous proof of his flying ability and retains that ability.

At Sydney they are developing the social side of the flying club very pleasantly. They have an excellent club house with a verandah, a large room for dancing, and dressing rooms for both men and women. Afternoon teas and luncheons are available, and supper parties will be catered for; the club having now installed a housekeeper and caretaker. A tennis court is being laid out at the rear, and also a clock-golf green, whilst there is serious talk of herbaceous borders. Whether the talk is serious because flowers are considered appropriate at an aerodrome is only one suggestion. It is pointed out that at this rate of artistic development they may reasonably expect groups of statuary, plash fountains and sun-dials on what used to be one of the bleakest and most desolate civil aerodromes in the universe.

We now learn from the latest issue of our contemporary *Aircraft*, the Australian journal, that the Sydney Club has reduced the charge of £1 10s. per hour for solo flying by 40 per cent., which makes it the more reasonable charge of 12s. per hour, but the other high rates apparently remain the same; also nearly one thousand pounds has been collected through a general public appeal, and with this another "Moth" is to be purchased, and an assistant instructor and assistant ground engineer are to be added to the staff. This has been found necessary owing to the number of pupils waiting to be taught. They have had the distinction of training the first lady in the Commonwealth to fly solo, who is Mrs. M. Bryant. The committee has also attached such importance to the necessity of every pupil member having an elementary knowledge of aeronautics that they have decided to pay the fee of one guinea for them to attend the lectures arranged by the Institution of Aeronautical Engineers, Australasian Branch, and to make attendance compulsory. At the end of the course, which will consist of fourteen lectures, the members must sit for a simple examination, and the results will have an effect on the grade of their certificates awarded by the Club. The latter will not be issued to a Club-trained pilot who has not attended at least twelve out of the fourteen lectures, and shown a reasonable knowledge of the subject matter set in the examination, and in the event of the former condition the member will have to pay the fee of one guinea.

## LIGHT 'PLANE CLUBS

### London Aeroplane Club

The total flying time for the week ending May 1 was 53 hrs. 15 mins.

Pilot Instructors:—Capt. F. G. M. Sparks, Capt. S. L. F. St. Barbe.  
Dual Instruction:—P. W. Hoare, G. Black, E. J. B. King, Dr. Cook, Lord Clydesdale, G. M. Randall, F. Clarkson, G. Neale, H. S. Greenland, Miss Fletcher, W. G. Riches, H. Solomon, I. H. McClure, E. L. D. Moore, P. O. A. Davison, A. J. Mulder, H. M. Samuelson, Miss Spooner, A. E. Leeding, Miss Wilson, C. R. Campkin, G. Weston, Mrs. Cook, G. C. Bonner, Lord Douglas-Hamilton, G. Merton, H. R. Presland, J. J. Hofer, N. S. Hulbert, E. A. Lingard, E. T. Symmons.

Solo Flying:—Maj. K. M. Beaumont, O. J. Tapper, E. T. Symmons, Miss O'Brien, G. H. Craig, A. G. D. Alderson, G. M. Randall, J. H. Saffery, A. R. Ogston, H. Solomon, R. P. Cooper, A. H. M. Lees, R. C. Presland, L. J. C. Mitchell, K. V. Wright, G. Terrell, H. Spooner, D. H. P. Esler, A. F. Wallace, G. C. Bonner, M. L. Bramson, N. Jones, E. L. D. Moore, Maj. H. Petre, A. C. Pearson, E. D. Moss, R. Malcolm, J. J. Hofer, G. Merton, N. J. Hulbert.  
Passenger Flights:—L. G. Skinner, Miss McClure, G. H. Weston, D. H. M. Symons, Miss McKenzie, Miss Tapper, A. G. Wallis.

The past week has been a little unfortunate for the club owing to a series of minor accidents.

Two club's "Moths" had an argument outside the club hangar on Wednesday last, one wanting to go in and the other to go out. Neither gave way, and wings began to fly. The damage was fairly substantial. G-EBMF is still in hospital, but G-EBKT, after treatment, was resuming work after two days. There was a pilot instructor in each "Moth."

On Sunday, May 1, the Bristol "Brownie" with O. J. Tapper as pilot, wrote off her undercarriage and received other minor damage as a consequence.

### The Bristol and Wessex Aeroplane Club

Report for week ending April 30. Exceedingly bumpy weather in the vicinity of Yate Aerodrome, due to vertical gusts of one Bolas, prevented any flying.

Unfortunately, the club's "Pixie" (the gift of Mr. George Parnall) will not be ready in time to relieve the Hampshire Club of their President's Cup and other souvenirs on the 15th, and attempts to subdue the gustiness referred to, by increasing club-mindedness, has not had the desired result of obtaining the loan of our Pixie's twin for the Hampshire show, although she is ready and straining at the leash.

On the financial side, it is pleasant to record that Maj. Egbert Cadbury, D.S.C., D.F.C., has generously promised £100 towards the cost of a 'plane.

Our acting secretary, who is to be the pilot instructor, is frantically searching for someone upon whom he can unload his secretarial responsibilities, in order to take five minutes' rest before flying commences.

Congratulations to Lancashire on their last week's effort. Perhaps they have heard of our impending advent into the arena, and want to be the first club to beat London.

### Hampshire Aeroplane Club

Report for week ending April 29.—Saturday, April 23, 40 m.p.h. gale; Sunday, 30 m.p.h. gale; Monday, rain.

The Clerk of the Weather has been unkind to us again this week, so that the total flying time did not reach a higher figure than 6 hrs. 5 mins. Instruction flying, 5 hrs.; solo flying, 10 mins.; test flights, 55 mins.

The following members had instruction: Messrs. Blake, 1 hr. 10 mins.; Sanders Clarke, 40 mins.; A. V. Roe, 30 mins. (this rather savours of the analogy of grandmothers and eggs); Bowen, 30 mins.; Eburn, 20 mins.; Waite, 20 mins.; Jayne, 20 mins.; Shepherd, 15 mins.; Cox, 15 mins.; Cooper, 10 mins.; E. Wyllie, 10 mins.; Capt. Yateaman, 10 mins.; and the Hon. Grosvenor, 10 mins.

The only soloist was Capt. Yateaman.

We are hoping to receive a Moth from Messrs de Havilland on Saturday, April 30, to replace our first "write-off." This machine is being fitted with a Mark II "Cirrus" which we have bought for a spare, and our old Mark I engine will be kept in reserve.

So many members have applied for the privilege of flying in the Pageant races that it has been decided to draw from the names of eligible members, and the results will be published next week.

### The Lancashire Aero Club

Report for week ending April 30.—Exceedingly cold winds chilled the enthusiasm and noses of members during the greater part of the week. Total flying time, 26 hrs. 20 mins., made up of 11 mins. 35 secs. dual, 9 mins. 5 secs. solo, 3 mins. 15 secs. joy-ride, and 1 min. 25 secs. tests.

During the week Mr. Chapman, our ground engineer (engines) did an excellent first solo. One is not sure whether he is the first club ground engineer to go solo or not, though one believes he is. In any case, one admires his keenness and sporting spirit in learning to fly and offers him hearty congratulations.

An event of great importance is fixed for this coming Sunday, May 8, when Mr. T. N. Stack, our old instructor, member and friend, will fly up to Woodford to pay us a visit. The proceedings, which will be of a more or less

informal and social nature, will commence at 2.30 p.m. and continue—well, until they stop. Several of the other clubs are sending machines and pilots over to join in the festivities, and there is every prospect of a thoroughly enjoyable "flying social," so to speak. In the evening Mr. and Mrs. Stack will be the guests of the club for dinner at the Queen's Hotel, Alderley Edge.

The Lancashire Aero Club owes a great deal to T. Neville Stack, not only for the reflected credit which he has brought upon it by his fine flight to India in a "Moth," but also for his sterling work as chief instructor and aerodrome manager during a rather critical period of the club's history. Sunday, the 8th inst., will be a memorable occasion.

### Midland Aero Club

Report for week ending April 30. The total flying time was 12 hrs. 20 mins.

The following members were given dual instruction with Mr. McDonough:—C. Burrows, E. P. Lane, F. Coxhill, J. C. Rowlands, H. Beamish, R. C. Cazalet, S. H. Smith, C. Fellowes.

The following made solo flights:—E. J. Brighton, J. Brinton, E. R. King, S. Swann, A. M. Glover, R. L. Jackson.

Passengers with Mr. Brighton:—H. Bolton, E. M. Alexander, S. H. Smith, R. D. Bednell. Passenger with Mr. G. V. Perry:—R. Brinton.

On Saturday Mr. Hubert Broad and Mr. F. N. St. Barbe arrived on the D.H. "Moth" EBNO for the Club's at Home Day, an account of which will appear in next week's report.

### Newcastle-upon-Tyne Aero Club, Ltd.

Report for the week ending May 1.—Total flying time: 33 hrs. 5 mins.—On LX, 14 hrs. 15 mins.; on QV, 18 hrs. 50 mins. Dual with Mr. Parkinson, 15 hrs. 10 mins. Solo (training), 4 hrs. 35 mins. "A" Pilots, 10 hrs. 45 mins. Joy rides (with Mr. Parkinson), 2 hrs. 35 mins.

The following members flew under instruction: Miss Leathart (advanced dual), Mrs. Heslop, Messrs. Thirlwell, Miesegaes, Wardill, George, Hayton, Rasmussen, Welch, Shaw, Turnbull, Bainbridge, Milburn, L. Middleton.

Solo (training), Messrs. Bainbridge, Turnbull, Stawart.

"A" Pilots.—Mr. R. N. Thompson with Mr. Parmeter; Mr. Scarlett and Mr. A. Bell. Mr. H. H. Leech with Mr. Thirlwell. Mr. Phillips. Mr. H. Ellis with Mr. W. B. Ellis, Mr. Nicholson, and Mr. Forster.

Mr. Mathews with Dr. Mathews and Mr. Percy. Mr. C. Thompson with Mrs. Heslop, Mr. White, Mr. Luckman, Miss Waugh and Mr. Todd. Mr. A. Bell with Mrs. Bell and Mr. J. Ball.

Joy rides.—Miss Hayton, Mr. M. Hayton, Mr. Moberly, Miss Lewis, Mrs. W. B. Ellis, Mrs. Parry, Mr. Broadbent.

Mr. Stawart completed the tests for his licence on Thursday, in excellent style.

Preparations for the flying meeting to be held on June 11 are now in hand, and given reasonably good weather, promises to be even more successful than that held last year. Further meetings are being arranged as follows:—

July 8, Members' meeting. August 1, Members' meeting. September 10, Open meeting.

### The Yorkshire Aeroplane Club

Report for the week ending April 30.—The total time for the week amounted to 33 hrs. 10 mins. consisting of the following:—Dual instruction, 6 hrs. 40 mins.; solo, 4 hrs. 20 mins.; joyrides, 11 hrs. 20 mins.; cross-country, 9 hrs. 5 mins.; exhibition flights, 1 hr. 30 mins.; and tests, 15 mins. There were approximately 124 flights.

The following members received instruction:—Messrs. Batcock, R. K. Lax, Miller, Weaver, Wilson, Swift, Thomson, and Miss Watson. Soloists: Carter, Clapham, Fielden, M. B. Lax, Mann, Norway, Wilson and Wood.

The following were given joyrides:—Messrs. Bamford and son, Call, Crabtree, Cross, Jamieson, Kidger, Rendall, Shaw, Mrs. Gale, and the Misses Hay and Parsons. In addition, a number of members of the Huddersfield Rotary Club.

At the beginning of the week, Mr. Beck flew "LS" from Sherburn with the intention of paying a visit on the Newcastle Club, but was forced to abandon the flight at Darlington with carburettor trouble. On landing he found that the air intake had become coated with a thick layer of ice, owing to the snow-storm encountered. The journey to Cramlington was continued by car, and he flew back from Darlington the next day.

On Friday another cross-country flight was accomplished, Mr. Beck flying with our Chairman as passenger to Cambridge, Northampton and Spittlegate, joyrides being given at the first two places.

The week's programme was concluded with the visit of the Huddersfield Rotary Club on Saturday afternoon. About 60 members attended, and most of them availed themselves of the opportunity of having joyrides which had been reduced to 5s. on this occasion. Teas were afterwards served on the aerodrome.

Messrs. Blackburns very kindly sent over one of their Rotary Avros in charge of Mr. Stockbridge, who, with Capt. West's and Mr. Carter's assistance, helped us admirably with the rush of joyriders, our two Moths and the Avro being in the air almost continuously from 3 till 7 o'clock.

It is hoped shortly to arrange a Landing Competition open to members of the Club, with prizes for those landing nearest to a fixed mark.

### A Tunbridge Wells Flying Club

We understand that there is every possibility of a new club forming shortly in Tunbridge Wells of which Sir Robert Gower, M.P., has consented to be President. Substantial subscriptions have been promised, we learn, as well as the price of a machine, which may be an Avro "Avian." It is proposed to have an aerodrome near the town, and also rent the Penshurst aerodrome, some miles away, as an emergency ground. It appears that the whole of the subscriptions will be devoted to the maintenance of the ground and eventually provide a club-house. The usual charges for instruction flying are expected to cover the running costs as the organiser proposes to act as the instructor without salary for some time to get the club going. He has been endeavouring to foster local activity in private flying for some time, and now that he has fairly succeeded he is almost in a position to start at once. Only the enrolment of members, which he now invites, practically all that he requires, for we understand that the grounds are taken and he is expecting to order a machine soon. We hope that local interest will rally

sufficiently to carry the scheme through. It is in the hands of Mr. B. D. Winsor, 156, Upper Grosvenor Road, Tunbridge Wells, who supplied us with the above information.

### The Scottish Flying Club

THE recent flight of Capt. Broad to Glasgow in a "Moth" with the Marquis of Clydesdale as passenger was in the interests of the proposed Scottish Flying Club, which Capt. R. C. Donaldson has been trying to establish for some time, and which he says has been hampered by many vague and verbal promises of support. The Secretary of State for Air sent a letter *via* the "Moth" to the Lord Provost of Glasgow, in which he expressed his hopes for the success of the club, and Lord Thomson spoke on air matters in the town at the time. Also through the organiser's efforts Messrs. C. C. Wakefield and Co. co-operated in the publication of "Flying for All," which was widely distributed throughout the movement. On April 7, 1927 a propaganda committee was formed comprising four pilot members of the R.A.F. Reserve besides Capt. Donaldson, the Press Secretary, of the T.A. Reserve, who has also had flying experience. They are Flight-Lieut. G. C. Walker, Flying-Officers R. B. Millar,

A. M. Dunlop, and H. W. Smith, all of Glasgow, with which they are familiar from the air. They are to exhaustively investigate the schemes of the clubs working with and without financial assistance. All communications should be sent to Mr. H. W. Smith, 101, St. Vincent Street, Glasgow. We hope that success will attend their efforts, and to report their progress from time to time.

#### A Confirmed Air Traveller

LORD OSSULSTON, who was flying over a part of the Great North Road during the Easter holiday, was glad to be in the air when he looked down on the stream of traffic enveloped in dust below, and he is quite convinced that the air is the safest and most pleasant mode of transit.

#### A Forced Landing

ONE of the small group of private pilots, Mr. A. Smith, who has an English Electric "Wren," has had the machine for a year without being able to fly it, as it has no airworthy

certificate. The engine is only  $3\frac{1}{2}$  to 7 h.p., and no engine of such low power has yet passed its tests. He is looking forward to the time when similarly low-powered machines complete with airworthy certificate are produced.

#### An "Avian" on Tour

A SCHEME to interest public schoolboys in flying is to commence with demonstrations of the Avro "Avian" at Beaumont College, Windsor, and also Eton, this week, and it will embrace wider fields accordingly as success attends these first visits. To impress potential purchasers of light aeroplanes with that which is within their scope, two amateurs will demonstrate instead of the usual professional, and these will be Mr. Lacayo and Mr. Wood, of the Lancashire Flying Club, who will fly the "Avian" from Hamble to Runnymede, opposite Magna Charta Island, and also fly to Croydon the same day. Eton will be visited the following day. In our next issue will be an account of these "Avian" activities.



#### Sir Sefton Brancker Back

AFTER a four months' air tour of more than 10,000 miles over Europe, Asia and Africa, Air Vice-Marshal Sir W. Sefton Brancker, Director of Civil Aviation, landed at Croydon from Cologne on April 28. His object has been to study the development of trans-European air lines, and he visited Egypt, Palestine, Iraq, Persia, India, the Soudan, Uganda, Kenya, Italy, Austria, Germany, and Belgium. Sir Sefton Brancker said that the linking of the Empire by air had now become purely a question of technical organisation and adequate finance. Very great importance was to be attached to the impending tests with large multi-engined flying boats along the overseas sections of the Empire air lines. They would eventually enable the 10,000-mile route from London to Australia to be opened.

#### The Viceroy of India's Air Tour

THE Viceroy of India's air tour, to which previous reference has been made, has recently included an interesting flight from Quetta via the Zhob Valley and Fort Sandeman to Kajuri Kach, where the Zhob and Gumal rivers join near the western approach to the Gumal Pass; and he ascended to a height of 12,000 ft. to obtain a wide view of the country, which is very beautiful at this season. The distance by air between Fort Sandeman and Quetta is 160 miles, which was covered in one forenoon, and the flight to Kajuri Kach, whither an excursion was made on the same day, was another 54 miles each way. The Viceroy, Lord Irwin, spent the night at Fort Sandeman.

#### Atlantic Flights

CAPT. SAINT-ROMAN, who damaged the floats of his seaplane at Casablanca, reached St. Louis, Senegal, on April 30, with wheels fitted to his machine in place of floats. It was his intention to continue the flight across the Atlantic to Buenos Aires so equipped, but the French Department of Aeronautics has ordered the abandonment of the attempt.

Comandante J. di Barros, the Brazilian pilot who was attempting a flight from Porto Praia to South America, fell into the sea about 200 miles from the Brazilian coast, and was towed into Fernando Noronha by the Italian steamship *Angelo*. It appears that the seaplane's aircrews were damaged, and new ones are being dispatched to the airman from Pernambuco.

Marquis de Pinedo's new seaplane "Santa Maria II" arrived at New York on April 30.

#### The Belgian Light 'Plane Meeting

THE date for the Belgian light 'plane meeting, the regulations for which were published in *FLIGHT* of April 7, 1927, has now been decided upon. The meeting will be held at the Brussels Aerodrome, on June 17, 18 and 19. The meeting is an international one, so that it is to be hoped that Great Britain will be represented. The entrance fee is 100 belgas (500 Belgian francs), and entries must reach the Belgian Aero Club by registered letter, not later than June 7, 1927.

For all particulars concerning the competition, application should be made to the Secretariat, La Commission Sportive

d'Aviation de l'Aero Club, Royal Belgique, 73, Avenue Louise, Brussels.

#### The Persian Hitch

THE hitch with the Persian Government is still unsettled, and as there is no sign from them of ratifying the agreement entered into in 1925 for allowing Imperial Airways to fly across Persian territory between Iraq and British Baluchistan, an alternative route along the southern side of the Persian Gulf is being considered. The natural and shortest route is along the northern side of the Persian Gulf where all the development has arisen. A survey is being made of the alternative route along the Arabian coast of the Gulf and crossing from the extreme point to, say, Gwadar or Pasni, in British Baluchistan. Considerable data relating to this region was collected during the war, but it is not a promising line, for it is along a deserted coast with no regular ports of call and is much longer than the northern route. Sea crossings are involved, and probably a range of mountains along the projecting spur of Arabia at the entrance of the Gulf.

#### Comte de la Vaulx's Air Tour

COMTE DE LA VAULX, President of the International Aeronautical Federation, is to tour Europe by air, and it is his intention to travel each section in local aircraft. Thus he will fly from Paris to Lisbon in a French machine, Lisbon-Madrid in a Portuguese machine, and so on. His itinerary proposed is Madrid - Rome - Belgrade - Bucharest - Vienna - Zurich-Prague-Helsingfors, Stockholm, Oslo, Copenhagen, Amsterdam, London, Brussels, Paris.

#### Dynamite by Air

Two Fokker machines left Hudson, Ontario, on March 21 to deliver supplies at Fort Churchill, a possible terminus of the Hudson Bay Railway, and have returned safely without establishing an altitude record. Among the supplies delivered were 6 cwt. of dynamite!

#### French Aerial Visitors to England

A SQUADRON of four "Goliath" seaplanes attached to the naval aerodrome of Frejus-Saint-Raphael are flying to London via Hourtin-Gironde-Cherbourg and Portsmouth, and will return through Paris, Dijon and Lyons.

#### London-Constantinople Service

THE new direct air route between London and Constantinople, which will bring the two capitals within 70 hours of each other, will be opened this month.

#### London from the Air

COMMENCING from May 6, and thereafter every Friday during the summer season, Imperial Airways, Ltd., will inaugurate their flights over London in multi-engined airliners, to which reference has already been made in *FLIGHT*. Visitors will thus have an opportunity of seeing the metropolis from the air, or, when visibility over London is bad, the Thames Valley, including Hampton Court, Virginia Water and Windsor Castle. Saloon cars will leave Airways House every Friday at 3 p.m., to take passengers to Croydon for these trips and tea will be served in the air and will be included in the "fare" of £2 2s. per passenger.

## AN INTERESTING DINNER

THE Technical Staff Association of the Aeronautical Inspection Directorate held its second annual dinner at the Imperial Hotel, Russell Square, on Friday of last week, April 29, when there were present some 160 members and guests. The dinner followed, as previously, the annual conference held earlier in the day, when the majority of those present at the dinner had gathered to discuss policy and other matters concerning the Association and the A.I.D. For the benefit of those who have not previously heard of this association (and very probably the majority of our readers have not), it may be stated that the A.I.D. Technical Staff Association is affiliated to the Institution of Professional Civil Servants, which fact will probably explain its character sufficiently for the present purpose. For the first time the Editors of the two technical aviation journals had been invited to the association dinner, a courtesy which we personally greatly appreciate, since we interpret it as an indication of the good feeling which now exists between the A.I.D. and the British aircraft industry (whatever may have been the case in the early days of the A.I.D.) whose interests *FLIGHT* and *The Aeroplane* represent.

On the occasion of the dinner the chair was taken by Mr. J. J. A. Gilmore, B.A., A.R.C.Sc., who is chairman of the Association, and in addition to the members of the T.S.A. a number of distinguished guests were present, representing various departments of the Air Ministry, and the aircraft industry. After a very excellent dinner, the Loyal Toast was honoured, and "The A.I.D." was proposed by Air Vice-Marshal Sir John F. A. Higgins, K.B.E., C.B., D.S.O., A.F.C., Air Member for Supply and Research.

Sir John said that the A.I.D. was looked upon as the mainstay of the R.A.F., and that work passed by the A.I.D. was looked upon with confidence. He recalled how the A.I.D. was started by Col. Fulton in a very small way, in a room at Farnborough, not much larger than the width of the table at which they were seated. Sir John referred humorously to a most wonderful card index system evolved by Col. Fulton, and reminded them that during the war the A.I.D. grew, from that small beginning, to a total personnel of some 18,000. The standard of efficiency maintained was extraordinarily high. The A.I.D., since the war, had been reduced to some 300 or so, but the efficiency was still higher. The annual conference and dinner of the T.S.A. were great assets, serving as they did to bring together the members scattered over the country. Sir John concluded by wishing every success to the A.I.D.

Lieut.-Col. H. W. S. Outram, C.B.E., Deputy Director of Aeronautical Inspection, in replying to the toast, referred to the success achieved by the A.I.D., and pointed out that this was a result of good team work. They had to be specialists, and in order to make a success of the organisation it was necessary that one specialist should co-operate with another. The organisation could only be kept up by the members meeting together as on this occasion, when they got to know each other as individuals and not merely as signatures. He would suggest that there should be more of that. He was not going to undertake to organise such gatherings, but it had been shown that they could be successfully organised, and hoped it might be possible to hold them two or three times a year instead of once. Turning to the future, Col. Outram pointed out that the technique of aircraft work was advancing rapidly. More and more new problems were arising every day, and it was only by each of them keeping right up to date that the success of the A.I.D. could be maintained.

Major C. P. Bulman, O.B.E., Chief Inspector, Engines, proposed "The Guests." Judging by the laughter and applause his speech was a very witty and amusing one, but, unfortunately, the writer was unable to hear it, owing to the ineffective silencers with which another party of diners in the adjoining room was fitted. References to *The Aeroplane* and *FLIGHT* were apparently being made, but their nature escaped one entirely, and readers are referred, for a report of this speech, to our contemporary, whose Editor happened to be placed closer to Major Bulman, and whose reception was, therefore, presumably not being "heterodyned" so badly.

In replying on behalf of the guests, Sir Walter Nicholson, K.C.B., Secretary of the Air Ministry and Chairman of the Whitley Council, said he did not know why he had been chosen to reply for the guests. On the Whitley Council he was seated at the opposite side of the table, and the staff were not usually depending upon him for replies, although Mr. McAnally was accustomed to put him up to say things which he (Mr. McAnally) wanted said. Referring to the A.I.D., Sir Walter, in a very witty speech, remarked that the A.I.D. was a remarkable organisation. It would inspect

anything, and everything. It would say whether or not a 5 million cubic foot airship was a good airship, whether a gas bag was a good gas bag. There were specifications, of course, and perhaps it was just possible that the specifications were not always correct. The A.I.D. would soon tell the department all about it. Even in the next world there would be a universal demand for wings, and consequently a demand for inspection. In more serious vein, Sir Walter pointed out that the roots of the A.I.D. went deeper than anything else in the Air Ministry. Upon the A.I.D. the repute of British aircraft rested, and the safety of the R.A.F. The A.I.D. deserved well of the State, and he hoped the State treated them well. Sir Walter concluded by quoting the classic specification for an after-dinner speech: "It should be like a lady's dress in that it should be long enough to cover the subject and short enough to be interesting."

Mr. B. M. Robinson, Vice-Chairman of Whitley Council (staff side), spoke as one no longer of the A.I.D. Technical Staff Association. He remarked that the T.S.A. was one of the strongest in the Air Ministry, most closely knit together. Regarding Col. Outram's remarks concerning team work, he would point out that teams did not work well unless the officership was good. If that team work was to continue it was necessary to have good officers. There was a wonderful *esprit de corps* in the A.I.D. and the difficult job should go to the right man. It was, he said, their hope that not a single weakling should be left.

Mr. Percy Maxwell Muller, of Vickers, spoke on behalf of the aircraft industry. He referred to the team work between the A.I.D. and the contractor, and as one who had been under the friendly despotism of Col. Outram for a long time. Perfection was a matter of degree. Some years ago the industry had no use for the A.I.D. The stamp of the A.I.D. was regarded as a hall mark that cost its weight in gold! It was still a hall mark of perfection, and was now worth its weight in gold the world over. What was considered impossible in the early days was standard now, and anything less was mud.

Mr. H. W. W. McAnally, C.B., Principal Assistant Secretary of the Air Ministry, in proposing "The T.S.A.," said the two toasts ("The A.I.D." and "The T.S.A.") were not two but one. The A.I.D. and the A.I.D. Technical Staff Association were very nearly identical in scope. He trusted the growth of the A.I.D. during the last year was not due to culpable negligence on his part! Last year Major Bulman had referred to him as a Daniel in a den of lions. Well, he had spent as much time as anyone in those dens, and hoped to appear as a lion tamer before the crowned heads of Europe. The speech was a sparkingly witty one, but could only be appreciated if reported verbatim, for which, unfortunately, space is not available.

The chairman, Mr. Gilmore, replying to the toast, said that the A.I.D. came under two heads: administrative and professional. He referred humorously to a suggestion some time ago that certain grades should receive certain small increases in salary. There was some doubt in the minds of some of their members whether there was not "a catch in it somewhere." However, they took in the wooden horse, but he understood that wood was going out of fashion, and they were prepared to take in a metal horse. In the presence of press men, or perhaps they would resent being called that, and he would substitute journalists, he had, he said, to be careful not to convey the impression that the A.I.D. Technical Staff Association existed solely for professional gain. It had many other objects. In conclusion, Mr. Gilmore referred to the Institution of Professional Civil Servants, to which the T.S.A. is affiliated, and expressed his appreciation of that institution which had, he said, led the T.S.A. away from Bolshevism. Their ties were not red now but puce.

During the evening entertainments of a lighter nature were provided, among which the singing of "Exercise" by the diners at the main table, led by the chairman, was particularly impressive, and demonstrated that the A.I.D. not only is willing to inspect anything and everything but also willing to execute. Lest this should be misunderstood we would state emphatically that the reference to execution does not relate to the entertainer who led the refrain.

The evening came to a close with the singing of "Auld Lang Syne." By that time it was getting very late, but the A.I.D. is accustomed to deal with stresses, strain and fatigue, and the factors of safety of all present appeared well capable of dealing with such static and dynamic loads as were encountered. The evening was a thoroughly enjoyable one, and one's respect for the A.I.D. was strengthened by the evidence of good fellowship which the gathering provided.

# THE ROYAL ACADEMY BANQUET

## Sir Samuel Hoare Responds for the Air Force

RESPONDING to the toast of the Air Force, at the Royal Academy Banquet, on April 30, Sir Samuel Hoare said it was the fourth occasion upon which he had had the honour to reply to that toast. The fact that once again they had invited him to speak provided, on the one hand, an example of Departmental longevity that was rare in modern political life, and, on the other hand, a degree of patience on the side of the Academy that must be almost unique in the history of public gatherings.

He was glad to say that the Royal Air Force was today twice as strong, in the number of Squadrons, as it was when he first replied to the toast. Its training was more intense, and its equipment more powerful, while it was still little more than half the size of the greatest air force in Europe.

During the last few months, proceeded Sir Samuel, he had had an opportunity of visiting by air some further Air Force stations beyond the seas. On the N.W. Frontier of India he found the Air Force operating in wild and mountainous country, where a few years ago flying would have been regarded as impossible, and playing a most important part both in frontier defence and in the maintenance of law and order amongst the tribes. The frontier, he added, had seldom been quieter than it was today, especially in Waziristan. While this was mainly due to a wise policy of road building and economic development, he claimed that the Air Force had rendered the greatest assistance in bringing this about.

Another direction in which he could point to progress was the fact that the nation was gradually becoming more air minded, the ordinary citizen taking an increasing interest in flying. Sir Samuel said he thought this was largely due to the light aeroplane clubs, and gave as an example of their activities the fact that during his recent flight he met

at Bushire on the Persian Gulf two members of the Lancashire Club, Messrs. Stack and Leete, who were on their way to India in two "Moths." He also mentioned that at Lingeh he was met by a gentleman in a fez who addressed him in excellent English, and when he inquired how he spoke English so well this gentleman told him that he also was a member of the Lancashire Club, and was travelling the Gulf in Manchester piece goods.

"Whilst I was in India," concluded Sir Samuel, "I did what I could to stimulate interest in aviation. I took, for instance, scores of people, men, women and even children of five or six years old, for flights in our machine. Upon one occasion I took for a flight the greater part of the Viceroy's Council. A prominent official, who shall be nameless, said to me when the machine was on the point of leaving the ground: 'Could not you arrange for a crash? A crash would create a unique chance for promotion in the higher ranks of the Civil Service.' There was no crash. The distinguished administrators returned neither crippled nor air-sick. The crash with all its attractions would have broken the record of a machine that punctually covered 10,000 miles without the need of a single repair or spare part. Could this record have been possible, had there not been a definite advance in British aviation during the last four years? Could the success of the Air Force on the Frontier have been conceivable without the steady progress of training and experience?"

"Whether overseas or at home the officers and men of the Air Force are proud to be included in this toast, and I cannot help thinking that their splendid and adventurous career will always make a special appeal to the men of imagination who year after year meet together at the Academy Banquet."

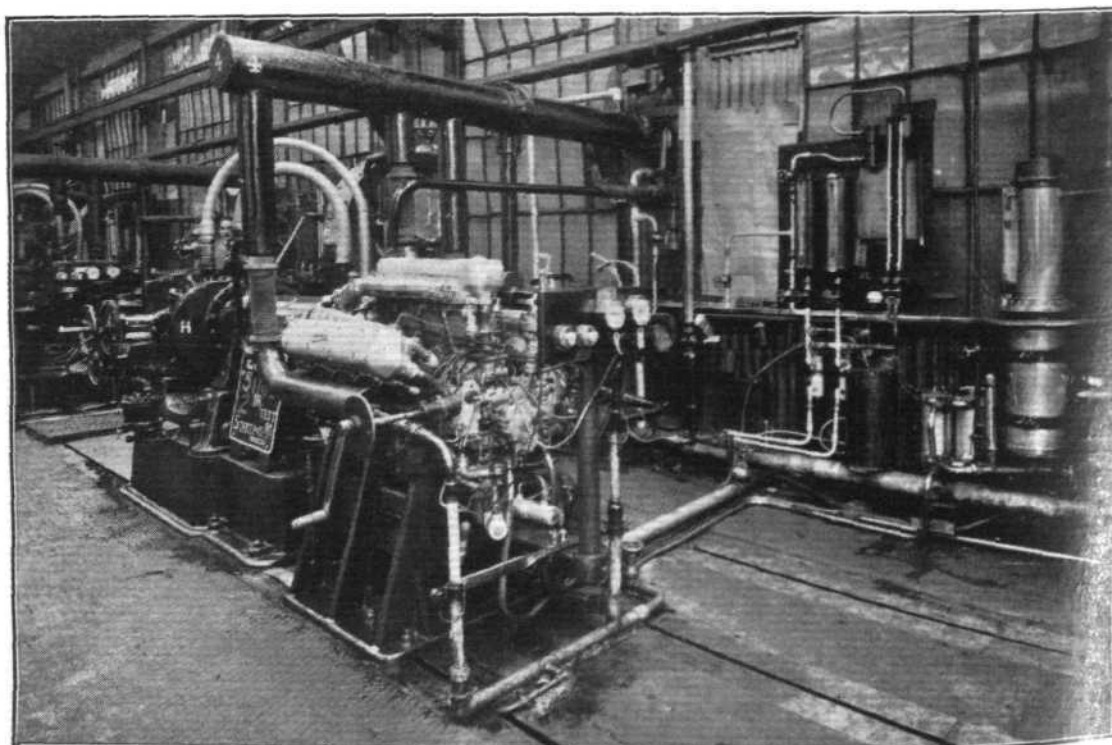


### Royal Air Force Display

THE eighth Royal Air Force Display will take place on Saturday, July 2, at Hendon Aerodrome. The programme of this annual display, which is an integral and important part of the training of the Royal Air Force, has been arranged to demonstrate the efficiency and airmanship of service squadrons in a series of air evolutions that will hold the sustained interest of spectators. New features are being introduced which will enable the public to appreciate the developments that are constantly taking place in the air arm, while events that have proved popular in past years are retained or are being revived. The flying parade of new types of war and civil aircraft should again emphasise the

advance in British design. Full details of the programme will be issued at a later date. As a result of the purchase of Hendon Aerodrome by the Air Ministry last year, arrangements have been made to improve accommodation and traffic facilities at the aerodrome. In addition to road improvements a grand stand, with a seating capacity of 3,000, is in course of erection in the ten-shilling enclosure. Special attention has also been devoted to the catering problem, and it is hoped that the new arrangements will ensure adequate service for the enormous attendance at the Display. The proceeds will be devoted, as in the past, to Royal Air Force Charities, and it is hoped that previous record "gates" will be beaten for their benefit.

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○  
○ "Lion" Taming  
○ at Acton: Our  
○ picture shows  
○ one of the several  
○ Heenan & Froude  
○ dynamometers  
○ installed at the  
○ Napier factory.  
○ In addition to the  
○ 100 hour tests  
○ given to new  
○ types of engines,  
○ every Napier pro-  
○ duced undergoes  
○ a 2-hour test on  
○ the dynamo-  
○ meter, is then  
○ completely strip-  
○ ped and ex-  
○ amined, and then  
○ given a final half-  
○ hour test before  
○ delivery  
○ ○ ○ ○ ○ ○ ○ ○ ○ ○



# THE ROYAL AIR FORCE

London Gazette, April 26, 1927

## General Duties Branch

The follg. are granted temp. comms. as Flying Offrs. on attachment for four years' duty with the R.A.F. (April 19). LIEUTS., R.N.—S. Borrett, H. W. Metcalfe. SUB-LIEUTS., R.N.—C. A. Kingsley-Rowe, L. J. S. Ede, J. C. Richards, P. Bethell.

The follg. Pilot Offrs. are promoted to rank of Flying Offr. :—L. C. Barling (March 12); S. H. White (March 28); E. A. T. Murray, I. A. Anderson, D. J. Harrison, F. F. Barrett (March 30). Pilot Offr. on probation F. S. Smythe relinquishes his short service commn. on account of ill-health (April 27).

## ROYAL AIR FORCE INTELLIGENCE

**Appointments.**—The following appointments in the Royal Air Force are notified :—

### General Duties Branch.

**Wing Commanders :** T. O'B. Hubbard, M.C., A.F.C., to Station H.Q., Bircham Newton, to command, 2.4.27. J. T. Babington, D.S.O., to R.A.F. Base, Gosport, to command, 27.3.27. B. E. Smythies, D.F.C., to 99 Sqdn., Bircham Newton, to command, 30.4.27. L. T. Leigh-Mallory, D.S.O. to Sch. of Army Co-operation, Old Sarum, to command, 11.4.27. V. Gaskell-Blackburn, D.S.C., A.F.C. to No. 21 Group H.Q., West Drayton, for Technical Staff duties, 2.4.27. W. J. Ryan, C.B.E., to R.A.F. Depot, Uxbridge, 2.4.27.

**Squadron Leaders :** P. A. Shepherd, to R.A.F. Practice Camp, Weston Zoyland, 1.4.27. A. R. Arnold, D.S.C., D.F.C., to R.A.F. Practice Camp Sutton Bridge, 1.4.27. E. D. Atkinson, D.F.C., A.F.C., to No. 1 Sqdn., Tangmere, 11.4.27. G. E. Livock, D.F.C., to H.Q., Coastal Area, 19.4.27. A. Durston, A.F.C. to R.A.F. Practice Camp North Coates, Fitties, 1.4.27.

### Medical Branch

The follg. relinquish their temp. comms. on ceasing to be employed :—Flight Lt. (Hon. Squadron Leader) H. B. Smith, M.B. (April 6); Flight Lt. A. E. Jenkins (April 4).

### Reserve of Air Force Officers

The follg. Flying Offrs. are transferred from Class A to Class C.—W. R. K. Atkinson (Jan. 29); W. B. Kelly (April 16); C. Sutton (April 17); A. E. T. Bruce (April 23).

### AUXILIARY AIR FORCE

#### General Duties Branch

The follg. to be Pilot Offr. :—No. 605 County of Warwick (Bombing) Squadron.—G. V. Perry (April 26).

### Stores Branch.

**Squadron Leader** P. Adams to the Packing Depot, Ascot, 7.4.27. **Flying Officer** W. Best to R.A.F. Depot, Uxbridge, on transfer to Home Estab. 20.1.27.

### Accountant Branch.

**Flying Officer** F. R. Barton, to No. 1 Sch. of Tech. Training (Apprentices) Halton, 26.4.27. J. J. Caiger to No. 47 Squadron, Egypt, 24.3.27.

### Medical Branch.

**Group Captain** C. E. C. Stanford, D.S.O., M.B., B.Sc., to R.A.F. Depot Uxbridge, 26.3.27.

**Wing Commander** F. N. B. Smartt, M.B., B.A., to R.A.F. Depot, Uxbridge, 26.3.27; to H.Q., Wessex Bombing Area, Andover, 13.5.27.

**Flying Officer** R. Thorpe, to No. 13 Squadron, Andover, 27.4.27.

## No. 41 FIGHTER SQUADRON

LAST year, Flying Officer A. Addams, of No. 41 Fighter Squadron, R.A.F., was killed in a flying accident. In order to honour his memory, his mother presented a cup to the squadron, known as the Addams Cup, for annual competition between the three flights. The first competition of the series was held at Northolt aerodrome on April 26. The judges were Wing Commander Reilly, of the Fighting Area, and Squadron Leader F. Sowrey, D.S.O., M.C., A.F.C., the officer commanding the squadron.

The competition was divided into three parts :—

Formation flying .. .. .	25 marks.
Aerobatics .. .. .	25 marks.
Radio-telephony .. .. .	50 marks.

The flight teams were as follows :—

(A) Flight (red wheel discs) :—

Flight-Lieut. F. K. Damant, D.F.C.  
Flying Officer V. C. Taylor.  
Flying Officer I. G. E. Dale.

(B) Flight (yellow wheel discs) :—

Flight-Lieut. C. A. Bouchier, D.F.C.  
Flying Officer T. A. Hale-Monro.  
Pilot Officer T. N. McEvoy.

(C) Flight (blue wheel discs) :—

Flight-Lieut. C. B. S. Spackman, D.F.C.  
Flying Officer C. S. Staniland.  
Pilot Officer H. T. Andrews.

## ADDAMS CUP COMPETITION

The aerobatics and formation flying competitions were held in the morning and the radio-telephony in the afternoon.

(A) Flight was somewhat handicapped by recent changes in the personnel, but none the less the flight put up a very good show of formation flying. (C) Flight scored heavily by accurate performance of the manoeuvre of reversing direction when in line astern by a half loop and a half roll. But, in fact, there was very little to choose between all the flights. The radio-telephony manoeuvres were also carried out with very high efficiency. A wave-length of 70 is used, and the practical range from air to air is from 5 to 10 miles, but from ground to air much farther. The call signal of the squadron in the air is "Condor," and the ground signal "Buffalo." The flights are distinguished as "Condor red" or "Condor yellow," according to the colour of the wheels of the flight.

(C) Flight won the Addams Cup with 88 marks. (A) Flight was second with 85; and (B) Flight was third with 82.

This shows the remarkably high standard of the drill; and evidently the presentation of the Addams Cup has had a most beneficial effect in rousing keenness in the squadron.

This is particularly gratifying in view of the fact that No. 41 has been selected to give a demonstration of drill by radio-telephony at the R.A.F. Display this year. It will be remembered that this squadron gave a similar demonstration at Croydon last autumn on the occasion of the visit of the Dominion Premiers, and made an excellent show on a gusty and bumpy day. The squadron is the first of the fighter squadrons which specialised in night flying. The equipment consists of the Siskin IIIA, with a supercharged Jaguar engine. The machines are painted with one broad horizontal red line along the fuselage and also along the wings. The machines of the flight commanders are distinguished by red noses and also by streamers of red, yellow and blue.

## AIR MINISTRY NOTICES TO AIRMEN

### Publication of Information in Notices to Airmen and the Air Pilot Monthly Supplement

1. PRINTED Notices to Airmen are issued by the Air Ministry free of charge to convey urgent and important information to all concerned with air navigation. It is important that every pilot, whether licensed in Class "A" or Class "B," should personally receive a copy of the notices as soon as possible after issue, and for this reason the notices are given a wide distribution. All owners of aircraft are supplied with copies of the notices for their own use and also, in the case of owners employing pilots, for the information of their pilots. The notices are also distributed to officials of all public aerodromes, aviation clubs and associations, and to aircraft and aero-engine manufacturers.

2. In the event, however, of individual pilots failing to receive copies through any of the existing channels, they will be supplied directly from the Air Ministry upon application being made to the Secretary (C.A.3), Air Ministry, Gwydyr House, Whitehall, London, S.W.1.

3. Notices to airmen of exceptional urgency are broadcast by wireless telegraphy to the principal aerodromes, a printed notice in confirmation being issued subsequently, if required.

### "Air Pilot" Monthly Supplement

4. The chief purposes of this publication are as follows :—  
(i) To correct and keep up to date the "Air Pilot," Great Britain. (Particulars of this book are given in Notice to Airmen No. 114 of 1924. Copies are obtainable directly from H.M. Stationery Office, or through any bookseller, price 32s. 6d. net.)

(ii) To provide information on the facilities available for civil aviation in such foreign countries as are regularly visited by British aircraft.

5. It should be understood that for information relating to this country the "Air Pilot," the Monthly Supplements, and Notices to Airmen are complementary to one another. Defined broadly, the "Air Pilot" is a compilation of information of a permanent nature, the Notices to Airmen contain new information of an urgent and important character, and the Monthly Supplements contain other new information. For foreign countries the monthly supplements are at present the medium both for disseminating new information and for collating that already issued, whilst notices to airmen are the medium for disseminating urgent and important information.

The supplements, in common with notices to airmen, are issued free of charge. Purchasers of the "Air Pilot" (Great Britain) receive the supplements regularly, without further payment, from H.M. Stationery Office, and a limited distribution among those who have not purchased the "Air Pilot" is carried out by the Air Ministry. It is important that every pilot should make himself acquainted with the contents of the supplements as issued, and individual pilots who do not at present have access to the supplements will be supplied from the Air Ministry with a copy of each supplement upon application to the address above mentioned.

(No. 30 of 1927.)

### Croydon Aerodrome : Landing Zones

WITH reference to para. 2 (iv) of Notice to Airmen No. 25 of 1927, pilots landing at and taking-off from Croydon aerodrome by day should conform with the regulations laid down for an aerodrome marked by a white star of five points. That is, the aerodrome is regarded as divided into two equal zones, for landing and departure respectively. For an observer facing in the direction of landing, the zone on the right is the landing zone and that on the left the departure zone. It should be noted, however, that during the reconstruction of the aerodrome a white star will not be displayed.

By night, during the reconstruction of the aerodrome and until further notice, the direction of landing will continue to be indicated by the double L system of landing lights as used hitherto.

No. 34 of 1927.

### NOTICE TO GROUND ENGINEERS

#### Inspection Tabs on Control Cables

1. In the case of all aircraft fitted with inspection tabs in the eyes of the splices of control cables, the following action should be taken :—

2. The inspection tabs must be restrained from movement and consequent chafing of the thimble eye by being definitely secured alongside the turn buckle by the locking wire or other suitable means.

3. Examination of all such tabbed cables and eyes shall be made, special attention being paid to such cables as are normally hidden, and any loose tabs secured as indicated above.

(No. 1 of 1927.)

## THE ROYAL AIR FORCE MEMORIAL FUND

A MEETING of the Executive Committee of the fund was held at Idlesleigh House, April 27, at which the following members were present:—Lord Hugh Cecil (chairman), Lady Leighton, Dame Helen Gwynne-Vaughan, Mrs. B. H. Barrington-Kennett, Mrs. L. M. K. Pratt-Barlow, Sir Charles McLeod, Bart., Air Marshal Sir John Salmond, Air Vice-Marshal Sir P. W. Game, Air Vice-Marshal F. R. Scarlett, Air Vice-Marshal H. R. M. Brooke-Popham, Air Commodore F. C. Halahan, Air Commodore E. R. Ludlow-Hewitt, Mr. W. S. Field.

The usual list of donations and subscriptions which had been received since the last meeting of the Committee held on February 17 last, together with a list of grants made by the Grants Sub-Committee and the secretary since the same date, were submitted.

The committee were informed that the school for the orphan sons of airmen, maintained by the fund at Vanbrugh Castle, Blackheath, S.E., had closed for the Easter vacation on April 5, and had re-assembled on April 26 with a full complement of 38 boys.

The committee were informed that the annual report for 1926 had been distributed amongst the vice-presidents, members of committees, and all subscribers, and to all units of the Royal Air Force, and to the Press, to the extent of 1,500 copies between the dates March 16 to 19, 1927.

Through the kindness of an officer of the Royal Air Force, the committee had been enabled to offer for sale amongst the Royal Air Force and to others interested, copies of a new book of "R.A.F. Songs and Verses"; applications for which at 2s. a copy, post free, will be received at the offices of the fund by the secretary.

The committee had under consideration the publication of some posters for distribution amongst the units of the Royal Air Force throughout the Empire setting forth the objects and activities of the fund and appealing for subscriptions, and it is hoped this will be ready for issue to the Air Force in about a month's time.

The next meeting of the executive committee will take place on June 15, at the offices of the fund at 3 o'clock.

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## IN PARLIAMENT

### Cairo-to-Cape Flight

COLONEL DAY, on April 27, asked the Secretary of State for Air how many biplanes were taking part in the Cairo-to-Cape flight; who are the makers of these planes; what engines are being used; can he give the names of the principal stopping places en route; and what will be the approximate cost to the State of this flight?

Sir S. Hoare: As regards the first three parts of the question, four service aircraft, manufactured by the Fairey Aviation Co., Ltd., and equipped with Napier Lion engines, are taking part in the flight in question. As regards the fourth part, the principal stopping places are Wadi Halfa, Khartoum, Malakal, Mongalla, Kisumu, Tabora, Abercorn, N'dola, Livingstone, Bulawayo, Pretoria, Bloemfontein and Capetown. As regards the last part, the extra cost involved is estimated at £3,500, as a maximum.

### Salvator Parachute

COLONEL DAY asked the Secretary of State for Air whether any further experiments have now taken place with the Salvator parachute; and, if so, whether the reports are satisfactory?

Sir S. Hoare: The Air Ministry is awaiting a reply from the Italian firm interested in the Freri parachute in regard to the carrying out of further experiments; in the meantime certain features of the design are being further investigated.

### British Aircraft in Persia

LIEUT.-COMMANDER KENWORTHY asked, on April 28, the Secretary of State for Air whether any difficulty has arisen with the Persian Government regarding the rights of British aircraft to fly over Persian territory on the Cairo-to-Karachi air route; how these difficulties have arisen; whether an agreement was entered into with the Persian Government before the flight was inaugurated; and what steps are being taken to remove the difficulties?

Mr. Locker-Lampson: The answer to the first part of the question is in the affirmative. As regards the second part, the difficulties were due to a recent and sudden reversal of policy by the Persian Government who decided not to allow an international airway along the southern coast of Persia. A written agreement which, had it entered into force, would have secured the opening of this route to international traffic, had in fact been signed by the Persian Minister for Foreign Affairs and His Majesty's Minister at Teheran, on behalf of Imperial Airways, Ltd., in September to October, 1925. Further negotiations with the Persian Government on the subject are now in progress.

Lieut.-Commander Kenworthy: Is it not a fact that the difficulty has arisen owing to our forbidding Persian aeroplanes to fly to Bagdad, or aeroplanes belonging to a Persian company?

Mr. Locker-Lampson: I do not believe that has anything to do with it.

### British Aircraft in China.

COLONEL DAY asked the Secretary of State for Air the number of aeroplanes or airships that are at present either attached to or under orders to join the Shanghai Defence Force in China, including the personnel attached to same?

Sir S. Hoare: The strength of the air units in or on their way to China is the equivalent of five squadrons of aeroplanes, with a personnel of 700 of all ranks.

## PUBLICATIONS RECEIVED

*Aeronautical Research Committee Reports and Memoranda: No. 1054 (M. 48).—The Variation in the Fatigue Strength of Metals When Tested in the Presence of Different Liquids.* By G. D. Lehmann. October, 1926. Price 1s. net. No. 1056 (Ae. 239).—Algebraic Formulae for the Performance of an Aircraft at Full Throttle. By R. S. Capon. July, 1926. Price 9d. net. H.M. Stationery Office, Kingsway, London, W.C.2.

*American Reports: No. 241.—Electrical Characteristics of Spark Generators for Automotive Ignition.* By R. B. Brode, D. W. Randolph, and F. B. Silsbee. No. 243.—A Preliminary Study of Fuel Injection and Compression Ignition as Applied to an Aircraft Engine Cylinder. By A. W. Gardiner. No. 246.—Tables for Calibrating Altimeters and Computing Altitudes Based on the Standard Atmosphere. By W. G. Brombacher. No. 249.—A Comparison of the Take-off and Landing Characteristics of a Number of Service Airplanes. By T. Carroll. No. 250.—Description of the N.A.C.A. Universal Test Engine and Some Test Results. By M. Ware. U.S. National Advisory Committee for Aeronautics, Navy Building, Washington, D.C., U.S.A. Price 10 cents per copy.

*Technical Notes: No. 251.—The Effect of Tube Length upon the Recorded Pressures from a Pair of Static Orifices in a Wing Panel.* By T. Carroll and R. E. Mixon. November, 1926. No. 253.—Wind Tunnel Standardisation Disk Drag. By M. Knight. December, 1926. No. 254.—Method of Correcting Wind Tunnel Data for Omitted Parts of Airplane Models. By R. H. Smith. January, 1927. No. 255.—Precision of Wing Sections and Consequent Aerodynamic Effects. By F. Rizzo. January, 1927. U.S. National Advisory Committee for Aeronautics, Washington, D.C., U.S.A.

*Hütte des Ingenieurs Taschenbuch, IV.* Wilhelm Ernst und Son, 90, Wilhelmstrasse, Berlin, W.66. Price 15 Rmk. (leather, 18 Rmk.).

*Basic Principles of Air Warfare.* By Squadron-Leader. Gale and Polden, Ltd., Wellington Works, Aldershot. Price 7s. 6d. net.

*The Broken Trident.* By E. F. Spanner, M.I.N.A. Williams and Norgate, Ltd., 14, Henrietta Street, Covent Garden, London, W.C.2. Price 7s. 6d. net.

*The Port of Gothenburg Year-Book, 1927.* By Sixten Prytz. The Gothenburg Air Ports Co., Ltd., Gothenburg, Sweden.

*Air Facts and Problems.* By Brig.-Gen. Lord Thomson, C.B.E., D.S.O. John Murray, 50A, Albemarle Street, London, W.1. Price 6s. net.

*Notes on Straight Spur Gears, With Special Reference to Gear Tooth Grinding.* By A. H. Orcutt. The Gear Grinding Co., Ltd., Anne Road, Handsworth, Birmingham.

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## AERONAUTICAL PATENT SPECIFICATIONS

(Abbreviations: Cyl. = cylinder; i.c. = internal combustion; m. = motor. The numbers in brackets are those under which the Specifications will be printed and abridged, etc.)

### APPLIED FOR IN 1925

Published May 5, 1927

30,909. SOC. ANON. POUR L'EXPLOITATION DES BREVETS KUNZER, and M. KUNZER. Apparatus for sending objects from aeroplanes to the ground. (248,708.)

### APPLIED FOR IN 1926

Published May 5, 1927

2,034. J. J. FITZGERALD. Heavier-than-air aircraft. (268,903.)  
20,407. SPERRY GYROSCOPE Co. Gyro-compasses. (269,042.)

## FLIGHT,

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